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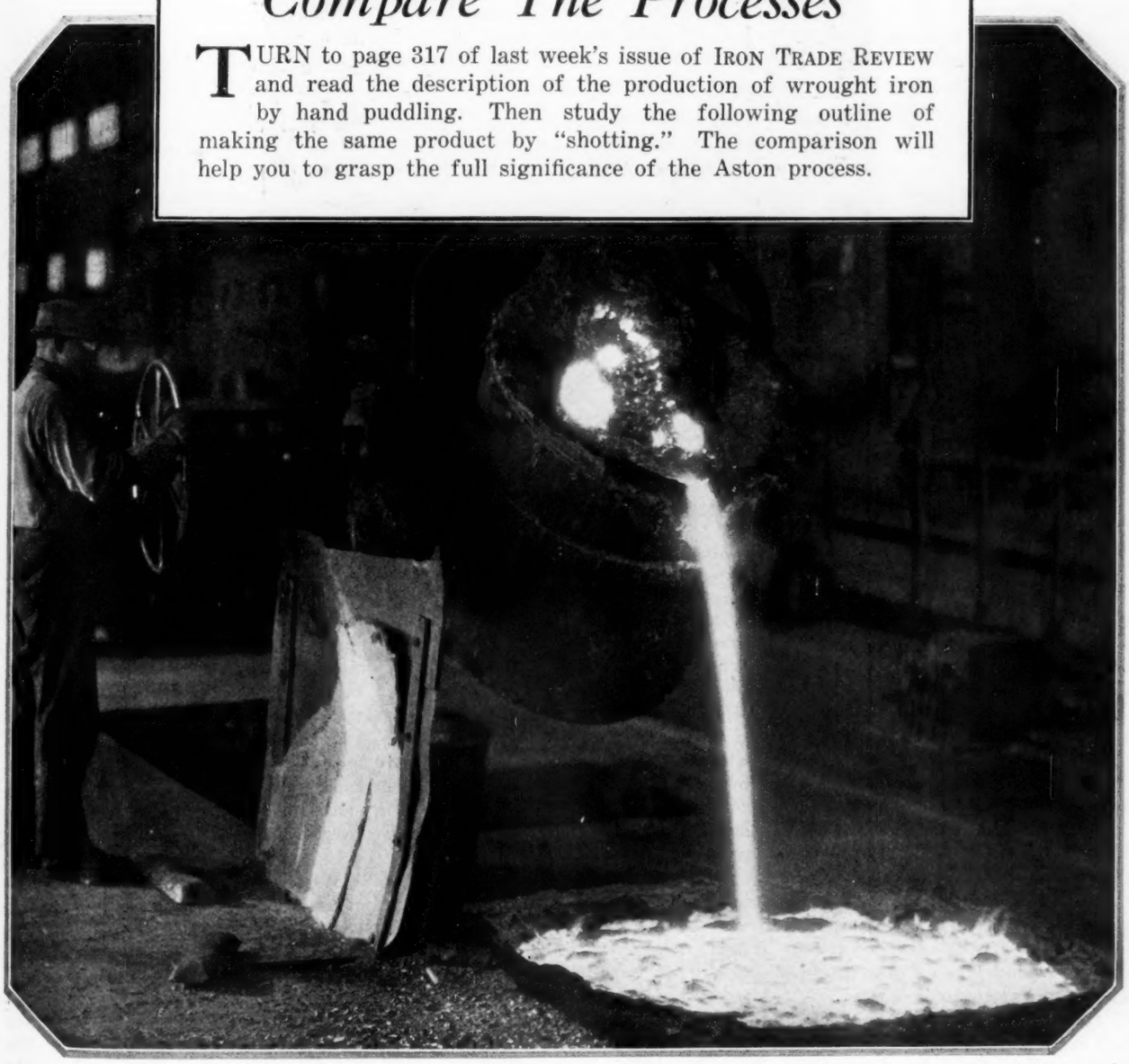
Will "Shotting" Make Wrought Iron a Tonnage Product?

Compare The Processes

TURN to page 317 of last week's issue of IRON TRADE REVIEW and read the description of the production of wrought iron by hand puddling. Then study the following outline of making the same product by "shotting." The comparison will help you to grasp the full significance of the Aston process.



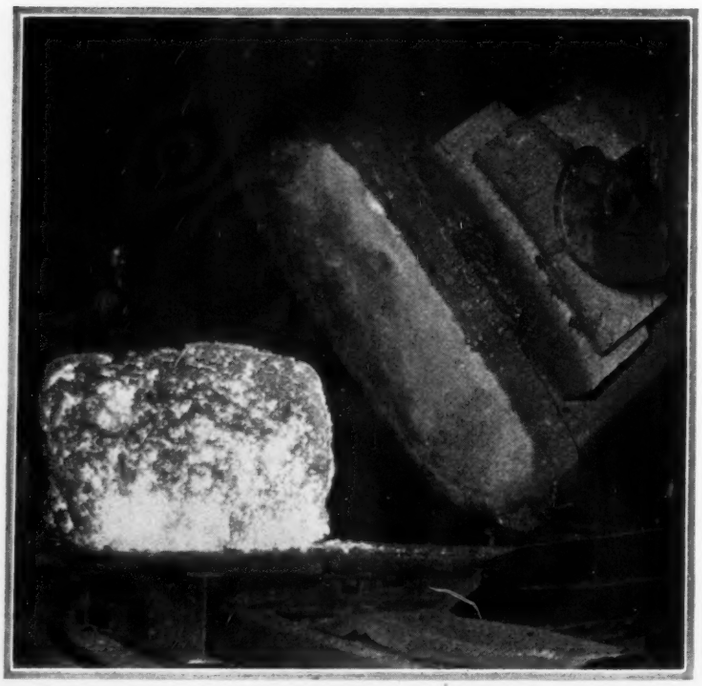
Pouring refined metal into molten slag. This results in a spongy mass of slag-coated globules of pure iron

Makes 4000 Tons of Iron Monthly By Synthetic Process

Iron Melted in Cupola and Refined in Converter, Is Poured into Slag, Producing Spongy Mass Identical with Hand Puddled Ball

By John D. Knox

Associate Editor, Iron Trade Review



Puddled ball resulting from shotting process. A carriage delivers sponge to a press and thence to roughing mill

FEW metallurgical operations are as fascinating to observe as that of hand puddling. Workmen with gingham skull caps as a headcovering man the furnaces. Their arduous duties are not the kind that invite young men of the present generation to learn the trade. Manual labor is required and plenty of muscle. This is self-evident to the observer as he watches the puddler charge by hand 550 to 600 pounds of iron in pig form; manipulate bars and rabbles in turning and melting the heat; and, handle puddled balls weighing 150 pounds or more between the furnace and squeezer.

Working a heat of iron by hand in a puddling furnace is executed in four stages known as melting down, clearing, boiling and balling. The furnace ordinarily used for hand puddling is of the reverberatory type with a fuel chamber, an oblong hearth and a flue. Cast-iron plates form the bottom and are covered to a depth of 2 to 4 inches with iron ore and this in turn covered with a layer of roll scale, to protect the lining from being oxidized by the flame. The working sides of the hearth are faced or fetted with about 6 inches of moist iron ore which supplies sufficient oxygen to unite with the metalloids in the pig iron. After each heat the side coating must be renewed.

About 200 pounds of roll scale, which serves as a flux, is scattered over the hearth. From 550 to 600 pounds of pig iron is thrown in the bottom and in about 15 minutes the metal begins to soften. The puddler inserts a bar through a hole in the charging door and turns each pig over to expose the under side to the heat. About 15 minutes later the charge is completely melted in the bath of slag which remains from the previous heat. A portion of the silicon and manganese in the metal is absorbed by the slag. During the second or clearing stage a slightly lower temperature is maintained for about eight minutes, a large portion of the silicon, manganese, sulphur and phosphous being absorbed by the slag. This is known as the clearing stage. A small quantity of mill scale then is added and the temperature increased. A violent boiling action ensues and as bubbles of carbon monoxide gas arrive at the surface of the slag they burst into small blue flames. Meanwhile the puddler stirs the bath with a long hook or rabble so that the carbon in the iron will unite with the oxygen in the slag, bubble up to the surface and escape by the flue. The reaction causes the slag to swell and a considerable quantity flows from the furnace over a spout in the foreplate or is skimmed off into a small buggy spotted beneath. As decarburization continues the charge begins to thicken, the boiling action diminishes, the cinder gradually drops and the metal "comes to nature." That is, small globules of iron encased with a film of slag settle in pasty porous masses on the bottom of the hearth. The puddler with his rabble turns the

puddled material to expose as much of its surface to the flame as possible.

A slag rich in iron oxide trickles through the spongy mass and protects the metal from oxidation later during the squeezing process. The puddler then detaches portions of the lump and, by rolling them over the hearth, forms them into three or four balls. These are removed from the furnace in turn through the charging door by a pair of heavy tongs suspended from a monorail and taken to the squeezer. This is a machine which expells the excess cinder from the puddled ball and shapes the iron into a cylindrical bloom-like mass suitable for introducing into the muck rolls. The machine is built with a cast-iron casing forming an incompleted circle and with the inner surface corrugated. A corrugated roll, mounted vertically, rotates eccentrically within the casing. The puddled ball entered between the two corrugated surfaces is forced through the tapering space. Particles of slag are expelled and the metal compressed. The iron in the form of a bloom is ejected at the narrow end of the machine and immediately is fed into the first pass of the muck rolls.

Iron Made by New Process

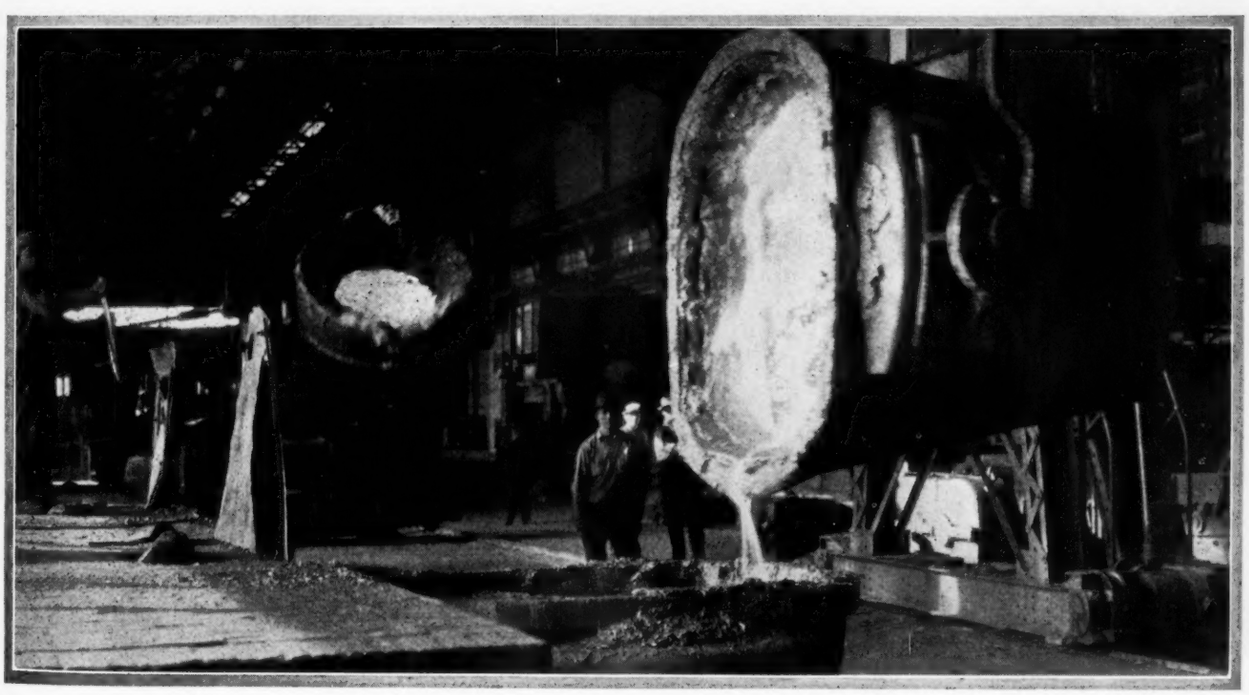
ON the outskirts of Warren, O., is a plant built in 1924 by the American Puddled Iron Co., but which never operated on a commercial scale. The plant was leased in 1928 by the A. M. Byers Co., Pittsburgh, and within its confines puddled iron now is being made but not in puddling furnaces. Instead of melting iron, making slag, refining the metal and bring it to nature in a single furnace, each operation is executed in separate units. Pig iron is melted in a cupola. Refinement of the metal is accomplished in a bessemer converter. Slag is made in an open-hearth furnace. The blown metal poured slowly into slag "comes to nature" in the bottom of a cast-iron container called a shotting cup. Throughout the entire cycle there is little semblance of exertion on the part of the crew such as is involved in the hand puddling process. No rabbling or stirring is necessary. And yet the spongy mass of iron is identical in appearance with hand-puddled balls.

The process, known as the Aston process, has been undergoing experimentation for the past ten years at the company's Pittsburgh plant. When certain equipment became available at Warren, O., the company immediately applied the method to larger scale operation than heretofore was possible. Practically the same steps used at the start of the experiment are employed today.

Bessemer pig iron and coke are charged in alternate layers in a cupola, capable of melting 18 to 20 tons of metal an hour. The materials handled in buckets are hoisted to the cupola charging floor by crane. The iron picks up 0.05 to 0.06 per cent of sulphur during the melting stage owing to contact with the fuel. Since nowhere in the process is it possible to eliminate sulphur the metal from the cupola is treated with fused soda ash, from 20 to 25 pounds per ton of iron being added in the ladle. This quantity is sufficient to pull the sulphur content down to the percentage desired in the finished product. Following this treatment the ladle of cupola iron is transferred by crane to the refining department. Here the high-sulphur slag is skimmed off and the metal poured into the mouth of a 2-ton side blow bessemer converter. Two vessels are provided, each being mounted on trunnions and tilted into the various positions by motor.

A row of tuyeres pierce the side plates of the vessel slightly above the metal line when the converter is in the blowing position. At the beginning of the blow the blast strikes the bath near the center and a dense mass of sparks is ejected from the mouth of the converter.

The metalloids are oxidized, producing a slag high in silica and iron oxide. After a few minutes a faint flame appears which gradually becomes extended in length. Meanwhile carbon in the metal is in contact with the slag and is oxidized forming carbon monoxide and is expelled from the converter. By this time the bath is boiling and undergoes violent agitation. Carbon monoxide continues to form until the iron oxide in the slag is reduced. The bath then becomes quiet, which is indicated by a long flame. When the carbon in the metal is eliminated the flame becomes smaller. The blast is



After rough ball of wrought iron is formed in silicate slag bath the liquid slag remaining in cup is poured off and the sponge taken to a press and compacted into a 12 x 14 x 60-inch bloom

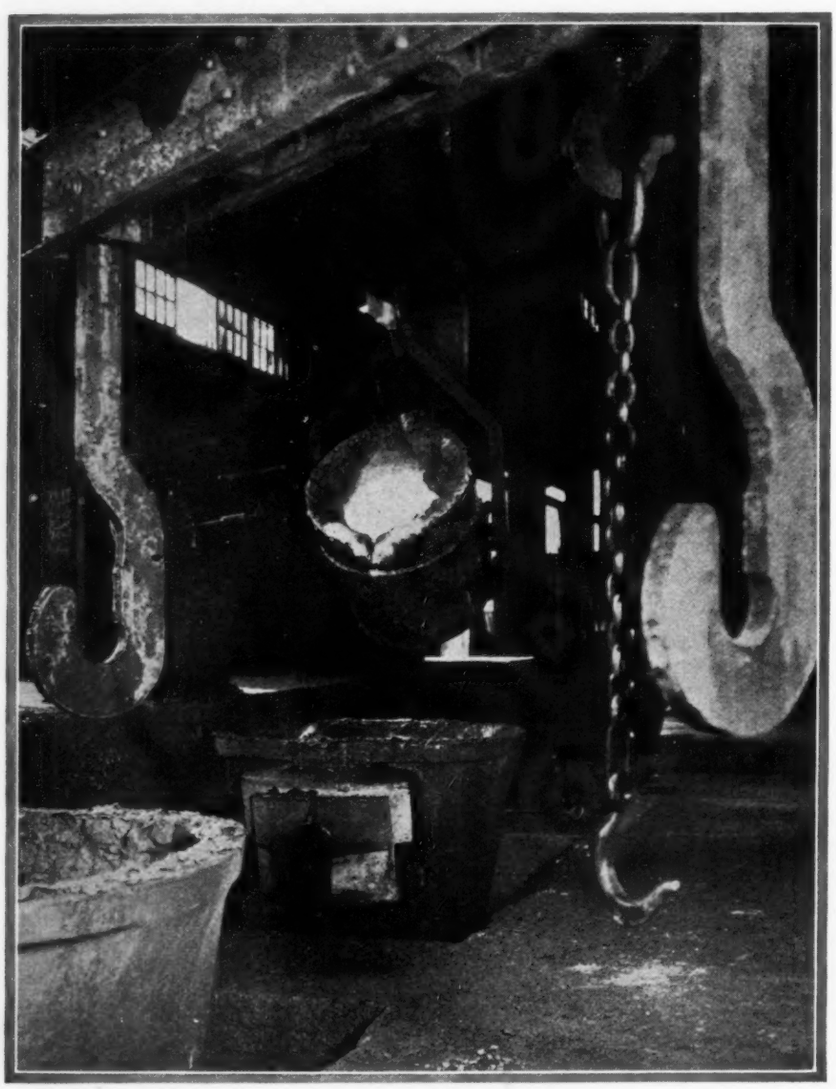
reduced, the converter turned down and metal poured into a ladle.

After blowing several heats the lining of the converter becomes worn to such an extent that it is necessary to charge in excess of 4800 pounds of iron in order to bring the bath to the tuyere level. Otherwise the blast will not inpinge on the surface of the metal. For this reason the charge ranges from 4800 to 6000 pounds. The lining near the tuyeres is cut away by the blast and requires patching after about 50 heats are blown. The vessel then is placed again in service for another 50 heats and then relined which requires about 8 hours. The new lining then is dried for a period of 12 hours, after which the shell is ready for charging.

Slag Made in Open Hearth

EACH ladle of refined metal is transferred on a ladle car from the building housing the bessemer vessels to the rolling mill structure, a short distance away. The ladle car operates on a narrow gage track and is drawn by a small gasoline locomotive. At one end of the mill building are two reheating furnaces which formerly were operated by the American Puddled Iron Co. Since leasing the plant the Byers company has adapted these units to the making of slag and in addition has laid down an open hearth which is being used for the same purpose. The latter is of the tilting type and is capable of melting 15-ton heats of steel. Its use, however, is confined solely to the manufacture of slag used in the Aston process, about 4000 pounds being obtained per hour. The furnace is fired with powdered coal but fuel oil later will be used.

Ingredients employed for making the slag include roll scale, heating and puddle furnace cinder and sand. At present puddle cinder largely is being used. This is melted in the furnaces previously mentioned. The slag, ferrous silicate in type with small amounts of manganese oxide and iron phosphate, is tapped into a ladle and is transferred by an overhead crane to the shotting station. Here in a shallow pit and arranged in a row are five unlined cast-iron ladles called "shotting cups." The slag is poured into one of the cups to a depth ranging from 2 to 2½ feet. Then refined metal brought from the bessemer department is hoisted by crane and slowly poured into the shotting cup until the volume assumes the proportion of about one part metal to three parts slag. During the pouring operation the position of the ladle is changed continuously to facilitate a uniform distribution of metal.



Refined metal is brought to shotting station by a crane equipped with dial scale and is poured into shotting cup in proportion of one part metal to three parts slag

Shatters Into Particles

IMMEDIATELY after pouring commences the slag begins to swell, gas burns at its surface and the metal "comes to nature" in a spongy pourous mass at the bottom of the cup. The explanation of this reaction is simple. Dissolved in molten metal is 15 to 20 times its volume of gas, mostly hydrogen and carbon monoxide. The solubility for the same metal for the same gases practically is zero when the metal is in the solid state. Consequently, if the metal is chilled to the point of solidification the gas is eliminated. In other words, if the metal is poured into an agent whose temperature is lower, the gas is liberated as rapidly as the metal is chilled; and, if the rate of cooling is rapid, the metal shatters into pellets. This is exactly what happens in the hand puddling furnace when the metal freezes and forms a sponge. The same reaction occurs in the shotting cup. The slag at a temperature of about 2400 degrees Fahr. chills the refined metal which is poured at a temperature of 2700 to 2800 degrees Fahr. The rapid liberation of the gases shatters the metal into small grape-like particles, the slag runs through the interstices and its incorporation with the metal is effected. But instead of requiring 45 minutes as in the case of hand puddling this step in the process is accomplished in about three minutes merely by a pouring operation.

When sufficient metal has been poured the shotting cup containing the spongy mass is hoisted by crane and the excess slag poured into the next empty cup. The crane then moves the cup across the approach table of the roughing mill and dumps the contained ball on a plate. A mechanical pusher moves the ball on a carriage which transfers it to a

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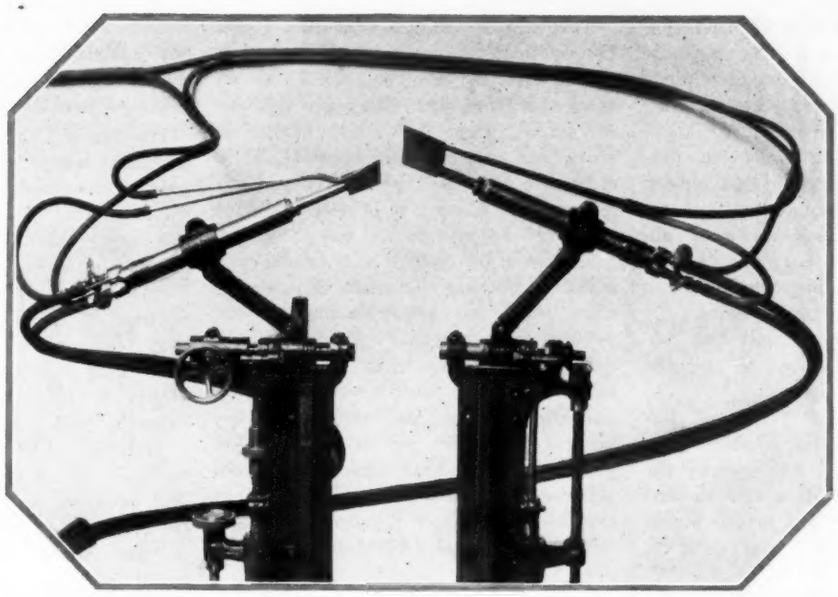


Fig. 1—Torches with multiflame tips spread the heat over the seam and effect increased welding speed and economy

Inexpensive Jigs Simplify Welding of Light-Gage Steel Sheets

By H. J. Grow

Research Engineering Department, Air Reduction Co. Inc., New York

JIGS are especially advantageous in the production of a large number of light-gage steel sheet parts because they add greatly to the convenience, economy, accuracy and speed of operation, and because they provide a positive control of the heat entering the work. Just as a machine tool jig, such as a drilling jig, has a dual purpose—holding the work and guiding the tool that acts upon it—so the welding jig in addition to holding the work, guides and to a large extent controls the flow of heat into the part being welded.

The common form of welding jig for cylindrical work comprises a horn or anvil properly shaped to hold the parts and a clamp or form which provides a V-shaped groove with a slot exposing the seam to be welded. It is necessary in most welding to provide a space or groove in the horn, or anvil directly below the seam as shown in Fig. 4. The purpose of this air space is to prevent too much of the intense heat of the weld from being absorbed and hence diverted from its useful purpose.

From a paper presented Feb. 3, 1928, before the Chicago section of the American Welding society.

One of the important advantages of the clamps, provided they are of sufficiently heavy construction, is that the sheets are shaped and brought into absolute alignment. The clamps also restrain the sheets so that they creep in at a uniform rate through the clamps to close the wedge-shaped opening always left between the edges of the sheet when the weld is started. The clamps are adjusted to a pressure just sufficient to allow the normal motion of the edges so that the shell is correctly positioned and properly shaped when the weld is finished.

Heat Absorption Is Uniform

As a matter of fact, the reason for jigging is to hold the parts in position and the edges of the sheets in alignment so that absorption of the heat will be uniform throughout the length of the seam, and to smooth out any buckles or irregularities which might be present, either visible or locked up as a rolling strain, in the part prior to welding. The clamps also act as chills carrying off excess heat and allowing the use of a larger welding flame than would be possible without the use of clamps; this in turn means a greater footage of welding per day. With clamps, the heating and cooling is more uniform and therefore, more simple to control.

The design of the jig from a heat absorption standpoint has an important bearing on the speed of welding. The width of the groove under the seam, the dimension of the V-shaped space in the clamp, as to depth and opening, and the mass of metal in the anvil and clamps are all important factors in determining how much heat will be directed into the weld and how much will be otherwise distributed. Tied up in this same subject is the fact that the rate of welding and the design of the jig govern the contraction of the sheets from the wedge-shaped position previously mentioned. For any given size of torch flame, it is evident that as the torch progress is slowed down, more and more heat will be absorbed by the work.

This excess heat in the sheets not only magnifies the contraction of the intensely-heated and rapidly-cooling areas already welded but it also increases the movement of the edges of the sheet throughout the zone extending for a considerable distance ahead of that part of the seam already

welded. Both the expansion and contraction, although acting in opposite directions, affect the wedge-shaped opening in one direction, that is, they tend to close it. Naturally, a larger wedge-shaped opening must be provided to take care of this effect. Moreover, the jig through both its restraining function and its heat absorbing function can be made to control this closing movement to a large extent. This explains more fully our previous statement that the setup may have to be varied to suit the welder's style and speed.

The types and construction of jigs are as varied as the articles produced on them. They are usually the result of a gradual development and expansion of the process in the plants where they are found, and most of them are ideally suited to the product made by their use. In other words, the jig must be made to fit the job, always keeping in mind the results that are desired. If speed of production is the paramount requirement, the jig should be as simple as possible. If it is desired to produce an article accurate within narrow limits and of a quality so high that the cost of production is not the leading factor then the use of complicated and elaborate jigs may be warranted. However, in most cases, the desired results are obtained with jigs of simple design.

A welding jig should be easy to load and unload. It usually is constructed so that parts can be placed quickly and the finished product removed speedily. In this connection, it is well to remember that in the case of jigs which are loaded cold and unloaded while both the jig and the work are hot, proper allowance must be made for expansion between the jig and the work, so that there will not be a tendency for the work to bind in the jig.

The simple clamps that are found in practical use and which lock and unlock readily are essentials of an easy operating jig. They are positive in action, lock the work firmly in place and when disengaged afford a clearance that will permit easy loading and unloading. It is desirable that they be adjustable to take various thicknesses of sheets and to exert a suitable holding pressure in accordance with the requirements of the job and each operator's welding speed.

It is necessary that provision be made so that contraction and expansion stresses do not affect the accuracy of the jig or the welded product. In general, distortion of the jig and parts is to be avoided unless the work is of such a nature that distortion in a certain direction facilitates the welding operation and counteracts a distortion which otherwise would develop as an after effect, due to the cooling and the form of the product. As an example, consider the case of the cylindrical shell jig previously mentioned. The amount of contraction which will take place as the weld cools depends upon the speed at which the weld was made and upon the design of the jig. This contraction can be estimated or determined by trial and the proper allowance made.

From what has been said of the heat-absorbing function of the jig, it is evident that provision must be made not only for the absorption but for the conduction and radiation of considerable quantities of heat by the jig. This usually is accomplished by providing sufficient metal in the jig members to absorb and carry away the heat, although less frequently, water-cooling of the jig is resorted to. Those jig members which must hold the sheets in line while being subjected to heat from the welding flame should be made preferably of cast iron. Rolled steel members generally are not satisfactory for this service as they change shape more rapidly under repeated heating and cooling.

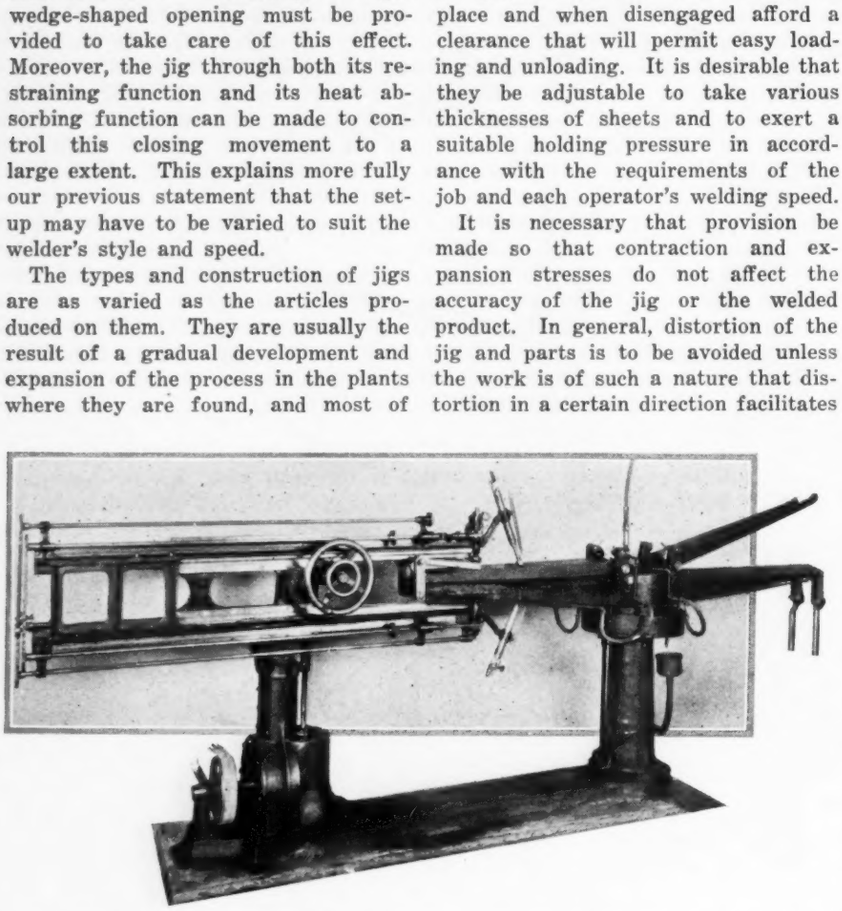


Fig. 2—Machine with two work-holding arms designed for welding long seams of cylindrical shells. Welding arms are water cooled

The demand for increased production has led many manufacturers to introduce mechanical gas welding into their plants. Mechanical welding by the oxyacetylene process with properly designed machines and accurately formed parts often insures a production of from three to ten times that possible by hand welding methods. This is possible by reason of the ability to employ torches of greater capacity and tips or burners having a multiplicity of flames which spread the heat over a greater length of seam and because the steadiness and uniformity of application of the flame to the work makes for increased speed and economy. This type of torch and multiflame tip is shown in Fig. 1. Mechanical welding also permits the operator to utilize some of his time in placing the work in the jig or otherwise preparing parts for welding, thus frequently eliminating the need for a helper. Among examples of mechanically-welded products, may be mentioned barrels, auto mufflers, tubing, paint cans, milk cans, refrigerator linings and storage battery cases.

The simplicity which is characteristic of hand welding can still be maintained when mechanical methods are introduced. There is one requirement, however, which must receive greater consideration when mechanical methods are planned and that is a more careful preparation of the work. This means that the sheets must be accurate as to size and accurately formed. It means, furthermore, that the sheets must be of a uniform gage and quality. It usually means that the sheet must be resheared, as mill-shearing is not satisfactory. No matter how careful and intelligent the welding application it cannot overcome defects in material or preparation.

Mechanical welding makes possible the setting of the torch at the proper and most economical angle to the work and the holding of this angle constant. The hot gases of the outside envelope of the torch flame protect the welded area against too rapid cooling and the reducing atmosphere which is present protects both the top and under side of the seam from oxidation. Both of these features tend to insure a high quality metal in the weld. Hence, mechanical welding produces uniformity in quality, appearance and strength of the weld with maximum production per torch.

Mechanical welding may be classified as semiautomatic in which the op-

erator attends to but one machine and which involves considerable handling of the work, and as that which more nearly approaches full automatic operation in which one operator can divide his time between several machines.

For the production welding of the long seams of cylindrical shells such as are used in boilers, tanks and barrels, there is available a machine which consists essentially of two work-holding arms which stand opposite each other and are mounted on a pivot, forming a turret fixture which is loaded and unloaded at one station and welded at the other. The welding arms, which are water-cooled are placed in a horizontal position and the shells are held by clamps while the torch is traversed along the seam by an electric motor. One torch only is used on thin gage metal but the machine provides for two torches, one above and one below when working on the heavier gages as shown in Fig. 2.

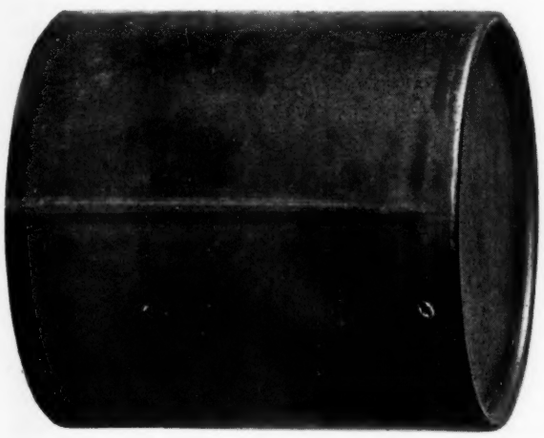
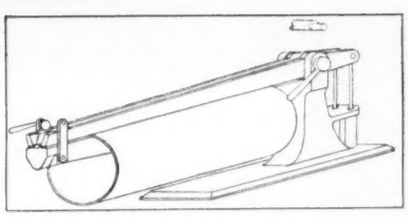


FIG. 3—Drum welded along longitudinal seam by automatic machine. Fig. 4—Common form of welding jig, showing air space provided in horn below the seam

Types of mechanical welding which require a minimum of the operator's time, enabling him to attend to a number of machines at the same time, are best exemplified by tube welding machines of which there are approximately 250 in daily operation in this country producing over half a million feet of gas-welded steel tubing in a 9-hour day. Another example of welding that approximates the full automatic is found in the manufacture of special paint cans. This job is being done by methods which are so nearly automatic that one man can attend to as many as six machines.

Fig. 3 shows such a can the longitudinal seam of which has been welded by this automatic method. It is to be noted that the weld successfully withstands the severe distortion incident to beading the side sheet over the bottom of the can.

While most of our discussion has dealt with butt-welded seams it should be realized that mechanical gas welding is not limited to this type of seam. Various combinations of edge welds lend themselves nicely to mechanical welding application. Such edge welds are found in cylindrical and square containers where a flanged bottom is to be welded to the side sheets. In some constructions it is desired to weld the edge of a reinforcing member between the edges of the main sheets. This variety of edge weld is also easy of achievement by mechanical methods. On certain articles it is frequently desired to make a corner edge weld on sheets at right angles to each other. The simple expedient of a torch, mechanically propelled along the edges of the clamped sheets on this sort of construction, usually effects the elimination of most of the hand welding previously required with a consequent gain in efficiency.



Our subject limits us to consideration of only the lighter gages of steel, and while most of the earlier development has been made in the field between 20 and 10 gage, the gage of the metal is no barrier to mechanical operations. By the extension of the principles and operations of light gage welding, the heavier sheets usually are welded more easily. There is even the added advantage that by certain manipulation the preparation of the heavier sheets can be made less and less exacting.

A. H. d'Arcambal, consulting metallurgist, Pratt & Whitney Co., Hartford, Conn., was the featured speaker at the January meeting of the New Haven chapter of the American Society for Steel Treating, his subject being "Classification of Steel Tools and also Carboloy." The meeting was held Thursday evening, Jan. 17, in Hammond laboratory, Yale university, New Haven, Conn.

Makes Wrought Iron by Synthetic Process

(*Concluded from Page* 384)

press. Here the sponge is compacted into a 12 x 14 x 50 to 60-inch bloom, ejected and pushed mechanically over a skid plate to the roller table leading to the roughing mill.

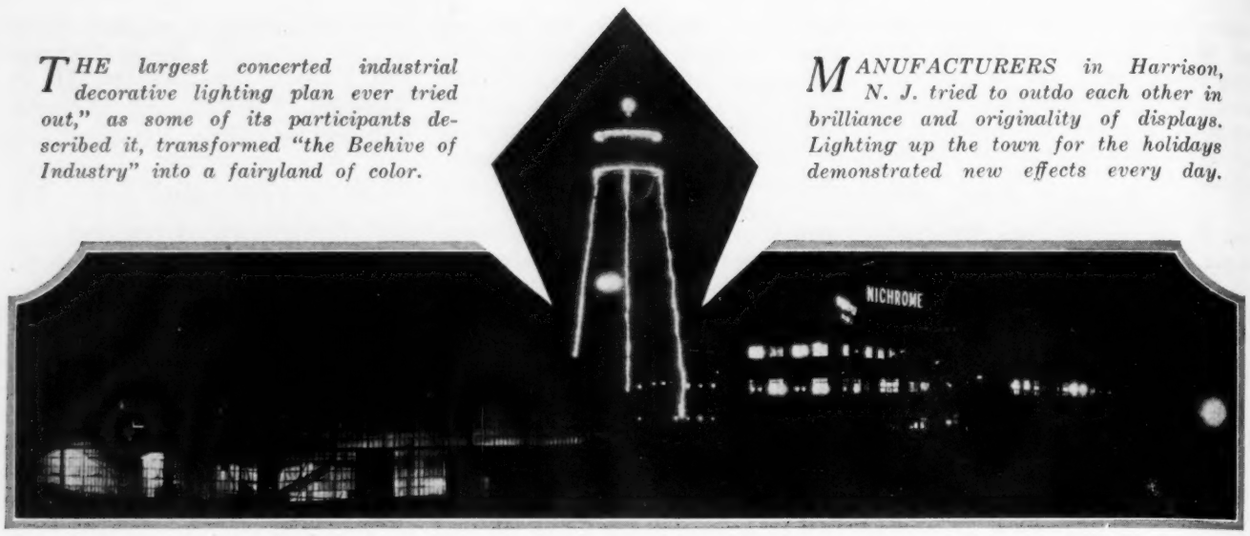
The roughing mill for breaking down the compressed bloom is a 3-high, 29-inch unit built with tilting tables and manipulators. After the desired number of passes required to convert the bloom to 4 x 4, 4 x 6 or 4 x 8 inches, depending on the width and thickness of the muck bar desired, the partially rolled material is delivered by roller tables straight ahead to the finishing mill. This is a single stand 3-high, 24-inch mill and finishes the material coming from the roughing stand into muck bar 4½, 6 and 8 inches wide. After the last pass between the rolls the bar is conveyed to a shear where it is cut to the desired length. Each section passes outside the building to the stock yard. Later the bars are loaded into cars by an overhead traveling crane and shipped to the company's plant at Girard, where they pass through the various piling, reheating, and rolling stages in being converted into skelp. When the material is intended for small size pipe, however, the compressed bloom is rolled into billets at the Warren O., plant and shipped to the company's southside works, Pittsburgh. Here the billets are reheated and rerolled direct into skelp without any piling. The experimental plant at Warren is producing about 4000 tons of muck bar and billets a month.

The A. M. Byers Co. is building a new plant for the manufacture of wrought iron by the Aston process at Ambridge, Pa., where it recently purchased a site of 112 acres. In addition to the equipment required for iron melting, iron refining, slag melting, etc., the new plant will include a 40-inch blooming mill, a 42-inch universal plate mill, an 18 and 16-inch continuous skelp mill and a 14 and 9-inch continuous skelp mill. The capacity of the new layout will approximate 200,000 tons of skelp and plate annually.

Surplus serviceable coal cars Dec. 31 totaled 149,369, an increase of 40,713 in a week.

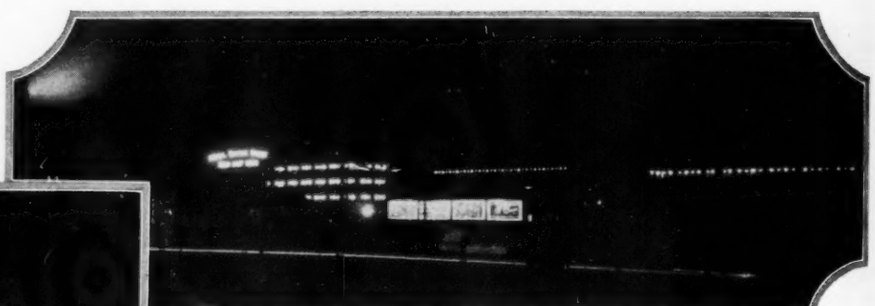
THE largest concerted industrial decorative lighting plan ever tried out," as some of its participants described it, transformed "the Beehive of Industry" into a fairyland of color.

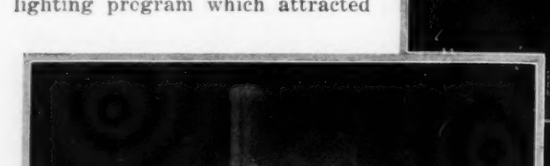
MANUFACTURERS in Harrison, N. J. tried to outdo each other in brilliance and originality of displays. Lighting up the town for the holidays demonstrated new effects every day.



Jersey Plants, in Holiday Dress, Show Possibilities of Illumination

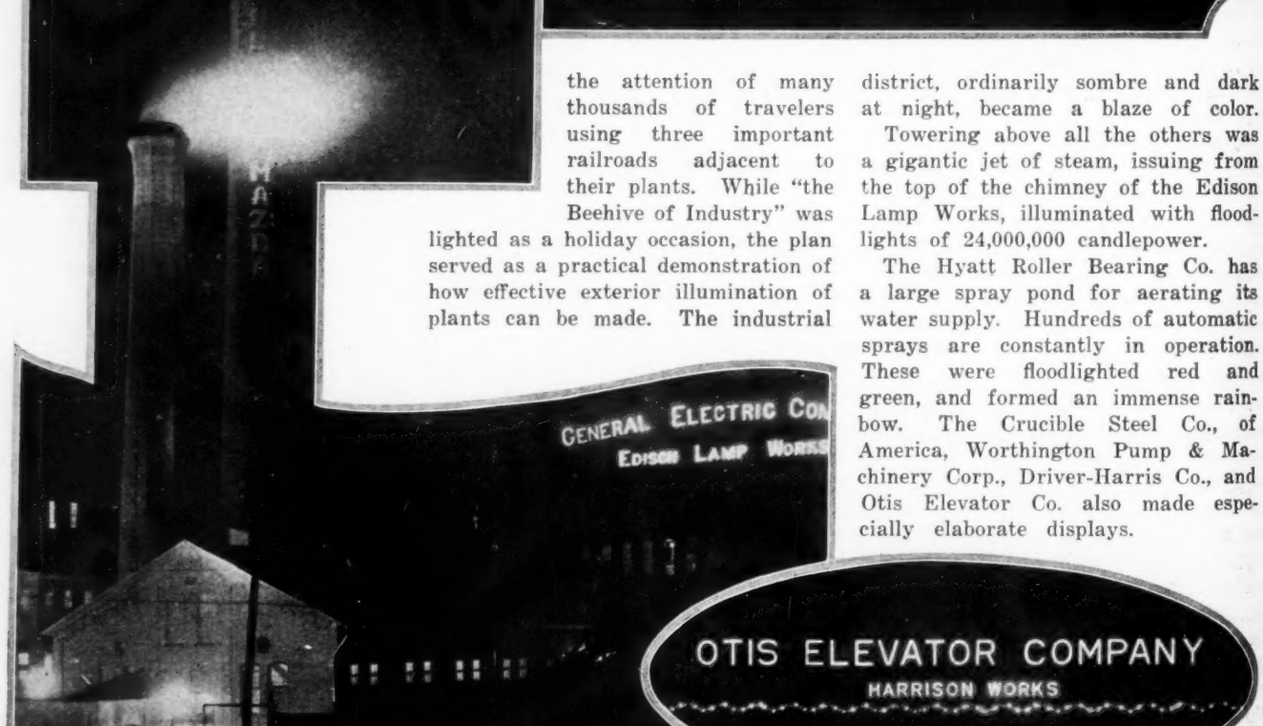
MANUFACTURERS in Harrison, N. J., identified with the West Hudson Manufacturers association, co-operated recently in a decorative lighting program which attracted the attention of many thousands of travelers using three important railroads adjacent to their plants. While "the Beehive of Industry" was lighted as a holiday occasion, the plan served as a practical demonstration of how effective exterior illumination of plants can be made. The industrial district, ordinarily sombre and dark at night, became a blaze of color.





Towering above all the others was a gigantic jet of steam, issuing from the top of the chimney of the Edison Lamp Works, illuminated with floodlights of 24,000,000 candlepower.

The Hyatt Roller Bearing Co. has a large spray pond for aerating its water supply. Hundreds of automatic sprays are constantly in operation. These were floodlighted red and green, and formed an immense rainbow. The Crucible Steel Co., of America, Worthington Pump & Machinery Corp., Driver-Harris Co., and Otis Elevator Co. also made especially elaborate displays.



Welding, Heat Treating and Grinding *Important* in Ax Making

By H. R. Simonds
Associate Editor, Iron Trade Review

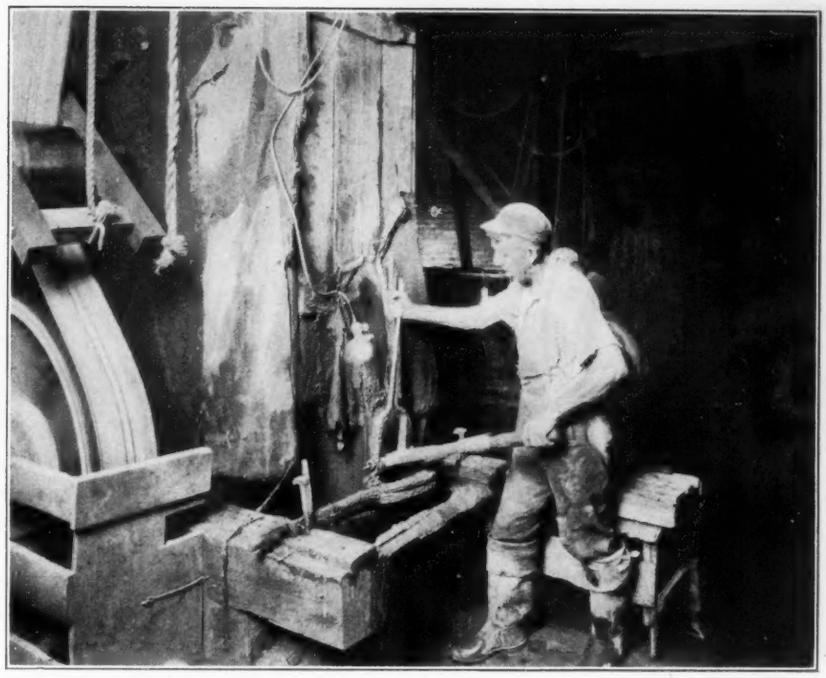


FIG. 1—AXES ARE SHAPED AGAINST SIX FOOT SANDSTONE WHEELS, WHICH COME FROM NOVA SCOTIA

FAR off the beaten path, in the picturesque town of Oakland, Me., three plants are busy supplying a large part of the country's ax demand. These plants have changed hands at times, and occasionally one or two have shut down, but for nearly 100 years axes have been made in the town at one plant or another.

Back in the hills surrounding the town one may find the comfortable homes of the old time ax makers. Here there is a pride in craftsmanship and tradition difficult to find in larger industrial centers. One man, John King, will tell you of 65 years in the ax-making industry. Until recently he was superintendent of the ax department of one of the largest plants. Now his son, John E. King, has succeeded to this position. The old gentlemen will tell, with a glitter in his eye, how he made and personally presented a fine ax to Colonel Roosevelt.

Through the town of Oakland runs a rushing river, and it was the power from this river that first gave the reason for the location of an ax plant at Oakland. The power rights of the river, however, have gradually been taken over by the electric light company and now all three plants are electrically driven.

Because of the interchange of artisans between these three plants, the method of making axes is similar in each, and a description of the processes in one plant will fairly well cover the operations in the other two. The first plant, as one enters the town from Augusta, is a large newly painted wood structure which is now operated by the North Wayne Tool Co. This plant although originally an ax plant now manufactures scythes as well as axes, and some years ago it was known as the Dunn Edge Tool Co.

The axes are made by the so-called 2-piece construction, that is, the poll, or head, is forged from open-hearth steel bars, and on to this is welded a high carbon crucible steel bit, made of so-called overcoat steel. The steel

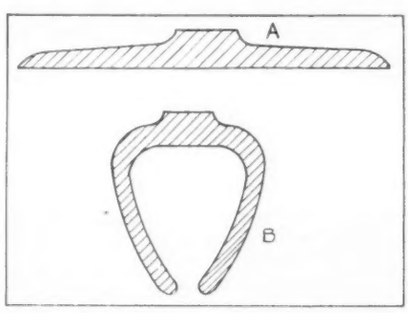


FIG. 2.—THE STEEL FOR MANUFACTURING AX BITS IS PROCURED IN SPECIALLY SHAPED BARS

for the poll pieces is supplied in wedge shaped bars. These are cut under power shears to the desired length and are then heated in an oil furnace located close to the first forging operation. When a piece has reached the proper temperature it is taken out and roughly formed between dies of a steam hammer. Immediately following this the piece is placed on a punch die of a second hammer and the hole to take the handle is punched out. Then while still hot the piece is returned to the first set of dies for further shaping.

The bit steel arrives at the plant in the form shown at *A* in Fig. 2. This is cut with power shears to length. The pieces are heated and then formed on dies as shown at *B*. This form is further flattened under trip hammers and is then adjusted over the edge of the poll for welding. After bringing the two pieces to the welding temperature they are welded under a heavy trip hammer. This operation is called bit drawing. During this operation, a steel pin is inserted in the open eye to prevent its closing.

After welding, the ax is again heated and again forged. This brings it to approximately final shape. From this point on the operations are practically all abrasive. The first which is a shaping operation is called pumping, or scribing. This is done on large sandstones which come from Nova Scotia and which average six feet in diameter and one foot thick. The operator has a jig or holder which he controls by a lever principle, which enables him to exert about three times the pressure between the ax and the stone that he would otherwise be able to do. He places the ax forging in this jig and by clever manipulating quickly rounds the corners, smooths down the irregularities left from the forging and shapes up the general contour of the blade or bit. This operation is shown in Fig. 1. The next operation, known as racing, further smooths up the outline and gives the ax its final size and shape. For

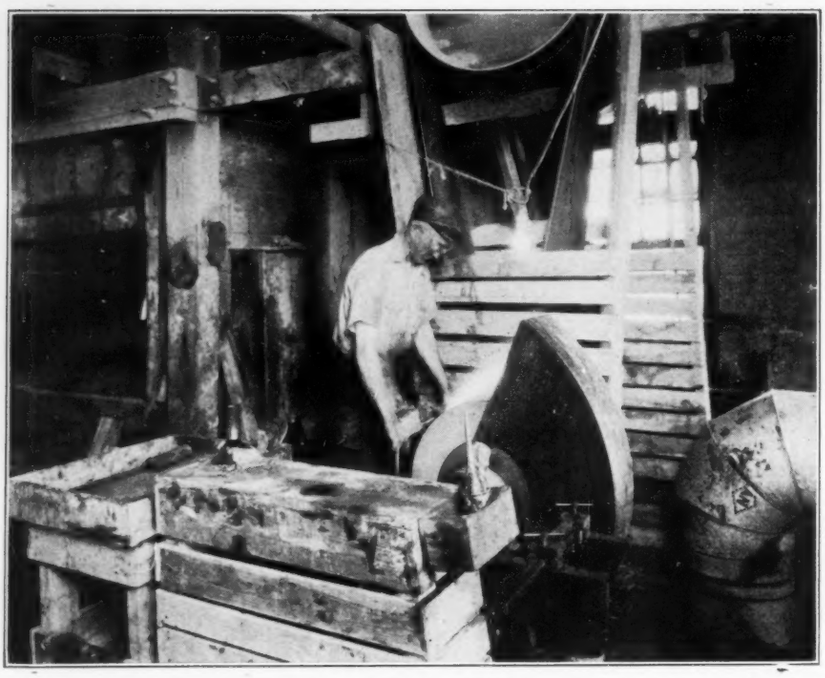


FIG. 3.—THE SHARPENING OF AN AX STILL REMAINS A HAND OPERATION WHERE PERSONAL SKILL IS REQUIRED

this operation large sandstones are also used, but the operator instead of using a hand lever uses a saddle mechansim in which he sits and thus adds part of his weight to the pressure of the ax against the wheel.

The next operation, as shown in Fig. 3, is known as the first grinding operation. It is performed on an aluminum oxide, vitrified bond wheel run at a surface speed of about 5000 feet a minute. The sole purpose of this first grinding operation is to sharpen the bit before hardening. From this point the axes are conveyed by overhead trolley to the hardening and tempering department which is in a separate building a few yards distant. The art of heat treating axes has been handed down from father to son, and follows no set rule. A good man in the tempering department is essential to the entire industry, and therefore these old-time companies see to it that they have a skilled man as heat treater. At the North Wayne Tool Co. plant the manager of the ax department is himself an expert hardener and temperer, and is thus able to step in at a moment's notice in case the regular operator is absent. The process is roughly as follows. The axes are placed in an oil fired furnace in such a position that about half the ax from the bit edge inward comes up to a cherry red heat. When an inspection indicates that just the right temperature has been reached these axes are quenched in brine in a large tank just to the right of the furnace. After this they are polished on an emery-coated cloth disk wheel to remove the scale and to show the temper. When properly quenched this polishing reveals a blue streak at the base of the bit. The axes that pass the test are placed on a second oil furnace, in a position so they can be watched. They remain here until the blue streak gradually rises and spreads to cover the entire steel bit, at which time they are immersed in water kept at room temperature.

Sharpening and polishing operations follow the heat treatment. The sharpening of the bit is done on an emery-coated canvas wheel which is made up, coated and shaped in the plant. These wheels are 18 inches in diameter and 3 inches thick. They travel at 1700 revolutions a minute. Polishing follows on a felt wheel coated with emery, and traveling at 1800 revolutions a minute. This wheel is also 18 inches in diameter and 3 inches thick. The second polishing operation is on a walrus-hide wheel using flour emery, traveling at 2100 revolutions a minute, and also 18 inches in diameter and 3 inches thick. The axes are now sorted by weight inspection and then sent to the handle department where wooden handles are inserted and wedged solidly in place. In this department there is a double floor-stand grinder equipped with hard emery wheels. This is used for smoothing off the end of the ax after the handle and wedge have been set in place. After this the axes are labeled or decorated as conditions may require and are then dipped in a special rust preventive lacquer and placed on racks to dry. A further inspection follows this and then the axes go to the shipping department for wrapping and packing. Axes from the Oakland plant are shipped to all points in the United States and to many foreign countries.

British Institute To Meet May 2

The annual meeting of the British Iron and Steel institute will be held May 2 and 3, 1929, at the house of the Institution of Civil Engineers, London S. W. I, by permission of the council of that institution. At this meeting prof. Henry Louis will assume office as president. The annual dinner will be served the evening of Thursday.

By invitation of the lord mayor and corporation of the city of Newcastle-upon-Tyne, the autumn meeting will be held at Newcastle the week commencing Monday, Sept. 9.

The latest date for receiving applications from candidates for election at the annual meeting is March 11, and for the autumn meeting, July 31. Candidates for membership, pending their election, are entitled to attend meetings and receive papers. All papers are submitted to a publication committee which reports to the council. Intending authors are desired to note that the following are the latest dates for receiving papers for either of the general meetings: for the annual meeting, Feb. 15, 1929, and for the autumn meeting, June 15, 1929.

At the annual general meeting in May, 1928, Charles M. Schwab, president of the American Iron and Steel Institute, presented, on behalf of the American Institute of Mining and Metallurgical Engineers and the American Iron and Steel institute, a cordial invitation to the British Iron and Steel institute to meet in the United States in 1932. The president, council and members expressed their grateful acknowledgments, and accepted the the invitation.

In March of each year applications for grants from the Carnegie fund are considered by the council. A limited number of grants are awarded, irrespective of nationality or sex, in aid of research work on some subject of practical importance relating to the metallurgy of iron and steel or allied subjects, and applications must be made on special forms to be obtained from the secretary. Candidates, who must be under 35 years must send in their applications before Feb. 28.

Plant Makes Safety Record

The entire organization of the Butler, Pa., plant of the Columbia Steel Co. recently completed 1,048,502 man-

hours without lost time because of an accident. This is an all time safety record for the American Rolling Mill Co., Middleton, O., of which the Columbia company is a unit.

W. H. Myer Is Assistant of Steel Division

William H. Myer, Newark, N. J., has become assistant chief of the iron and steel division of the department of commerce. He succeeds W. K. Ray, now in charge of the district office of the bureau of foreign and domestic commerce at Pittsburgh.

Mr. Myer comes to the iron and steel division from the Fiber Lastic Products Co., Newark. He was born at Carthage, Tenn., attended the public schools there and later Phillips-Exeter. He is a Harvard graduate and was also connected with the General Electric Company in 1912 and 1913.

Wheeldon Wire Bankrupt

Wheeldon Wire Co., West Brookfield, Mass., has filed voluntary petition in bankruptcy listing liabilities of $159,862 with assets scheduled at $123,588. There are no secured claims, the unsecured, amounting to $145,518, being obligations on promissory notes and trade acceptances.

Ohio Seamless Profits Up

Ohio Seamless Tube Co., Shelby, O., reports net profits of $612,365, equal to $6.48 per common share, for 1928. This compares with $330,337 or $2.48 per share in 1927. Nearly $100,000 was expended from earnings in completing a program of plant improvements, according to A. C. Morse, president. The company's condition and prospects for 1929 are the best in its history, according to President Morse.

Trade Council To Meet

The sixteenth National Foreign Trade convention of the National Foreign Trade council will be held in Baltimore, April 17-19, at the Lord Baltimore hotel. The opening session will be featured by an address by James A. Farrell, president, United States Steel Corp., New York.

National Electrical Manufacturers' association, at its midwinter meeting in New York, adopted a resolution advocating a special session of congress for general revision of the tariff.

Produces Light Bars on New 8-Stand Mill

WHITEHEAD IRON & STEEL CO., Newport, Monmouthshire, Eng., has the distinction of having introduced at its Courtybella works one of the first Morgan mills laid down in England. The mill, which was installed in 1922, was a combination continuous hoop and skelp mill. The roughing and finishing rolls serve for either hoop or straight strip, and the change over from one to the other can be effected in a few minutes.

A recent addition to the mill will enable the company to produce light bars and sections. The furnace and the roughing rolls are common to the three mills, and are served by the same crew.

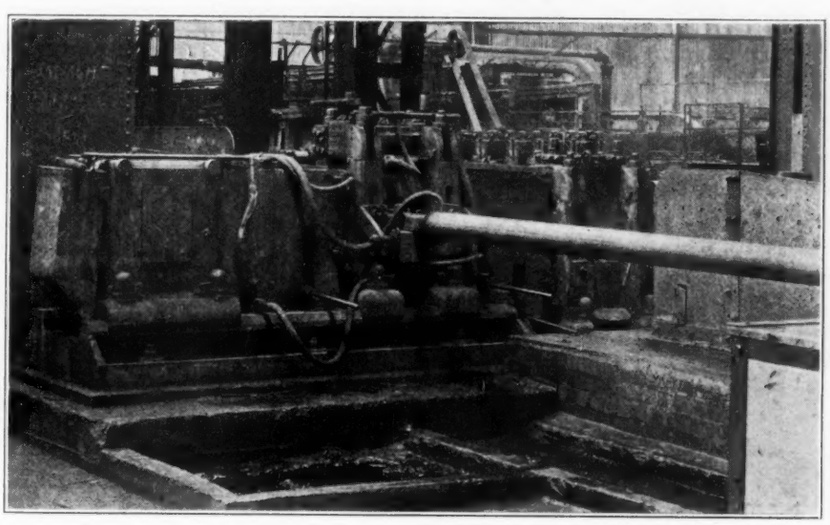
The new mill can be made self-contained and independent, having its own furnace with continuous roughing and finishing rolls. The plant site covers 30 acres. The building for the mill extension, 71 x 420 feet, is served by a 5-ton Royce crane.

The mill train comprises seven stands of 12-inch horizontal rolls, and one stand of vertical edging rolls placed between Nos. 5 and 6 stands. When producing either hoops or strip the billets are cut to length by a dividing shear which operates before the metal reaches the first pair of roughing rolls. After leaving the seventh stand of rolls the section is diverted by a trough to the first pass of the finishing mill which comprises four stands of 2-high rolls, two of 7½-inch rolls and two of 8½-inch.

After leaving these rolls the metal is troughed to the cooling bed and special shears cut the section to the full length of the bed 230 feet. This bed is of the Edwards oscillating universal saw tooth type and is made in two sections enabling the finished bar or other material to be carried down the center of the bed and shifted broadside to one side or the other. The saw toothed racks are arranged in parallel, and oscillated in unison by arms from beneath. When swung in one direction the hot bar is lifted on the points and one set of teeth from which it slides into the angle formed by the next. The rack is then swung in the reverse direction thus permitting the teeth on the other side to engage the stock, when the operation is repeated. For cutting purposes the assembled bars, etc., are conveyed by live rollers to the shears, placed at the end of the cooling bed. These are equipped with 20-inch blades and heavy flywheels and are belt driven by 10 horsepower motors. A stop device insures accurate cutting to dead lengths.

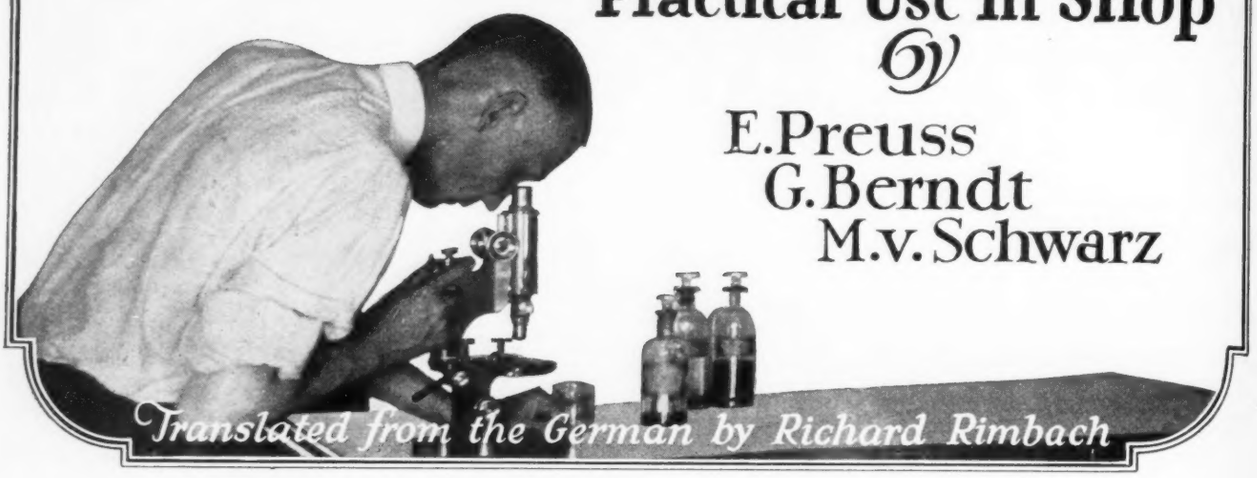
A further set of live rollers conveys the bars to pockets for bundling. The rolling of the billet to the full length decreases the amount of cropping. The same lever which operates the shears also reverses the cooling bed. The whole of the mechanical equipment was supplied by Davy Brothers Ltd. of Sheffield, under their agreement with the Morgan Construction Co., Worcester, Mass.

The main driving and the necessary auxiliary plant were supplied by the Metropolitan Vickers Co. Ltd.



Exit side of new continuous mill for finishing light sections

Metallography Simplified for Practical Use In Shop



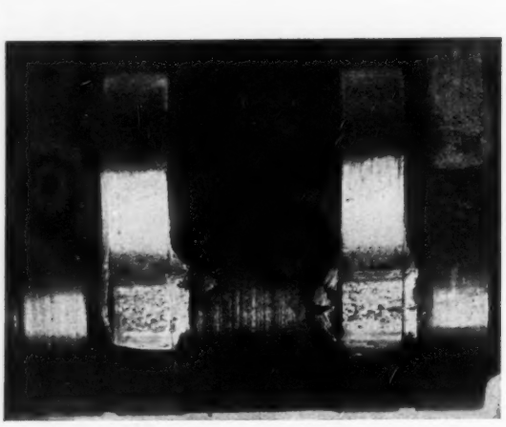
By
E. Preuss
G. Berndt
M. v. Schwarz

Chap. IX—Hardened Steel (Concluded)

IN ORDER to obtain especially tough cores in case-hardened structural parts, for example vehicle parts, a low chromium-nickel steel is used to advantage, particularly for pieces of large dimensions. However, good results can be obtained also with the ordinary steel if the carbon content of the part to be case hardened is not too high. Steel containing 0.12 per cent carbon is the best, with 0.16 per cent the upper limit. Often this is not taken into account, and in practice case-hardened parts with carbon contents of 0.2 to 0.35 per cent are found that never can have as tough a core as those mentioned before. The thickness of the case-hardened layer is of great importance for the durability of the parts. For gears of fine pitch a hardened surface of ¼-millimeter thickness is sufficient, while for large gears about 2 millimeters is advisable. For just such gears cast steel recently has been case hardened with success and the wearing qualities increased considerably. The depth of the layer, in which the carbon content amounts to about 0.9 per cent, properly can be assumed to be 1/10 to 1/6 of the tooth thickness. If this layer is thicker not enough tough material remains in the core, and with intermittent stressing of the teeth to which gears always are subjected, there is great danger of fracture, as a result of which the whole gear or even the

Cast Iron Next Subject

IN the Feb. 21 issue of IRON TRADE REVIEW *the first installment of Chapter X in the current series on metallography will be presented. Cast iron is the subject of the chapter which consists of a discussion of the structural constituents of iron-carbon alloys containing more than 1.7 per cent carbon. White and gray cast iron, commercial gray iron, chilled iron and malleable iron are some of the forms of cast iron considered, all being represented by numerous micrographs and other illustrations.*



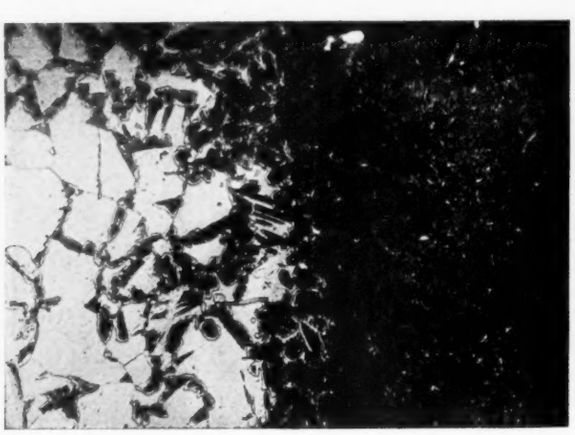


Fig. 116 *(Left)—Worn shaft of a French automobile motor, which could be used no longer after being in operation a short time. X* 1.5. *Fig.* 117 *(Right)—Section through the shaft; gives erroneous impression of a case depth of* ¼*-millimeter. Etched microscopically. X* 150

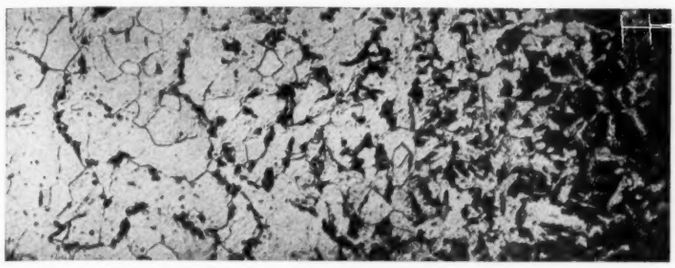


Fig. 118—Same steel as in Fig. 117, after annealing; shows that carburization has penetrated only about 1/15-millimeter

entire train of gears may be destroyed.

Fig. 116 shows the crankshaft of a French automobile motor which wore out after a short period of operation. By microscopic examination of axial and longitudinal sections the cause was disclosed quickly and with certainty. Fig. 117 represents the microscopically etched axial section at 150 diameters magnification, in which the case-hardened zone, at the right edge, appears dark and amounts apparently to about ¼ millimeter. In the hardened stage, however, it cannot be stated with certainty how deep the pearlitic zone goes, and for this reason the section, protected against oxidation by surrounding with iron filings, was annealed, again ground, polished and etched. Fig. 118 shows that the hardenable edge zone had accumulated enough carbon so that pearlite was formed only at the rim. The actual case-hardened depth is consequently only about 1/15-millimeter and much too thin. When testing with a file this could not be recognized because even this martensitic layer of 1/15-millimeter was almost glass hard and hence was not attacked by the file.

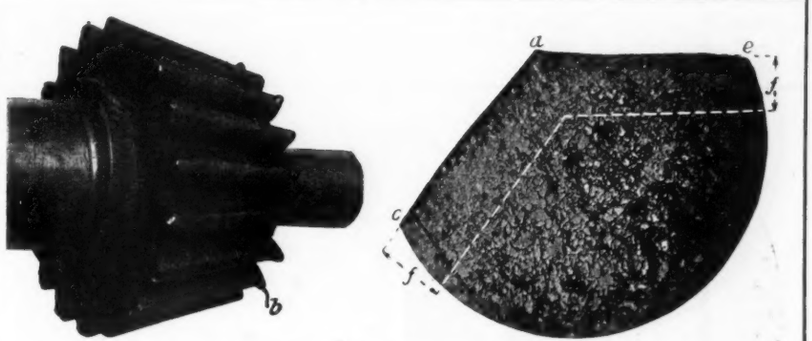


Fig. 119 (Left)—Bevel gear showing considerable tooth wear. Fig. 120 (Right)—Section through a tooth of the gear, etched microscopically. X 55

The teeth of a case-hardened bevel gear for a motor car shown in the micrograph, Fig. 119, were badly worn after short operation. This can be seen clearly on the remaining projections not worn away at the smaller diameter of the teeth. The reason for this rapid wear was to be determined, but it was necessary in order that the gear still could be used that it should be injured in no manner. Therefore, only a projecting unworn part of the tooth was broken off at *b*, and ground for microscopic examination. The microscopic structure of this sample after etching is shown in Fig. 120; line *c-d* belongs to the side and *d-e* to the head of the tooth. By close examination, a lighter layer along the surface of the tooth of the thickness *f* can be recognized. This layer, in contrast to the inner part of the tooth which has a clearly pronounced crystalline formation, shows no crystalline structure but appears uniformly light. This is probably due to the fact that the etching time was long enough to develop the structure

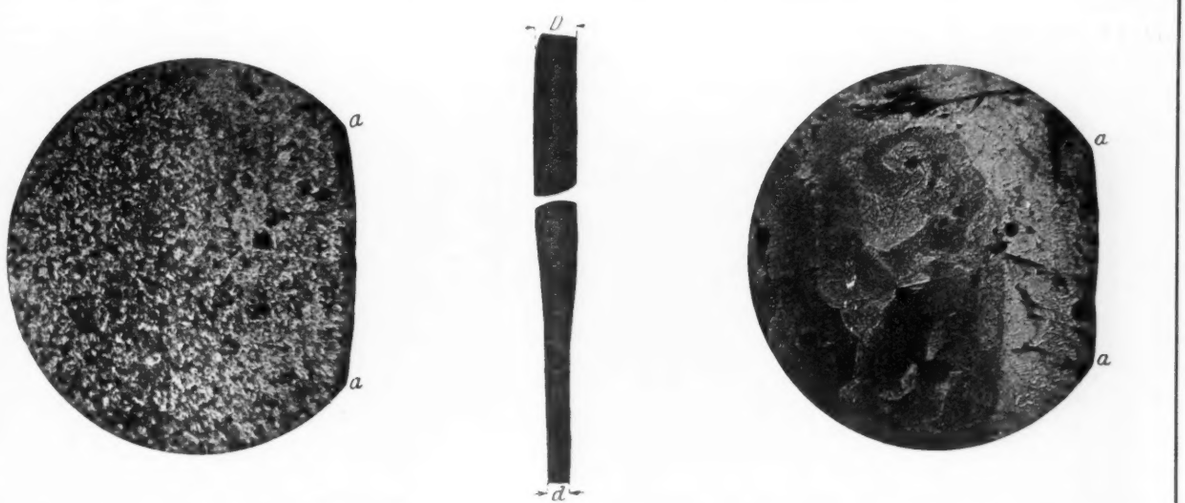


Fig. 121 (Left)—Cross section through the lower uncarburized part of the gas mantle holder shown in center. Etched microscopically. X 42. Fig. 122 (Center)—Gas mantle holder enlarged by the absorption of carbon from the gas. Fig. 123 (Right)—Cross section through the upper carburized end of the holder. Etched microscopically. X 42

in the softer core zone but not in the harder edge zone; with a longer duration of the etching it would have shown here. By measuring it could be determined that the thickness of the edge zone appearing light and without actual structure under the microscope was only 0.2 millimeter as an average. This thin surface probably was removed soon by wear whereupon the underlying soft material was exposed, and of course suffered a particularly heavy wear.

That too high a temperature or too long a time of carburization can entirely spoil the piece to be case hardened is proved by Fig. 124 which represents a piece of steel that, according to the heat treating shop, could not be case hardened; it clearly shows two separate zones. The edge, shown in Fig. 125, does not show any martensite but does show large nests of temper carbon. This proves, as will be explained in Chapter X in more detail, that the steel was subjected to long annealing and cementite disintegrated into ferrite and carbon. On the other hand, the core, shown in Fig. 126, consists of clearly recognizable martensite proving that carbon also has accumulated to a large extent in the center, a fact re-emphasizing a long carburization.[21]

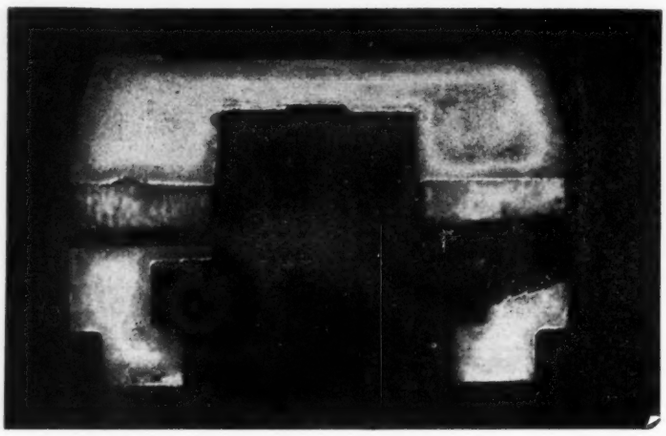


Fig. 124—Longitudinal section of an overcarburized case-hardened piece of steel, etched microscopically

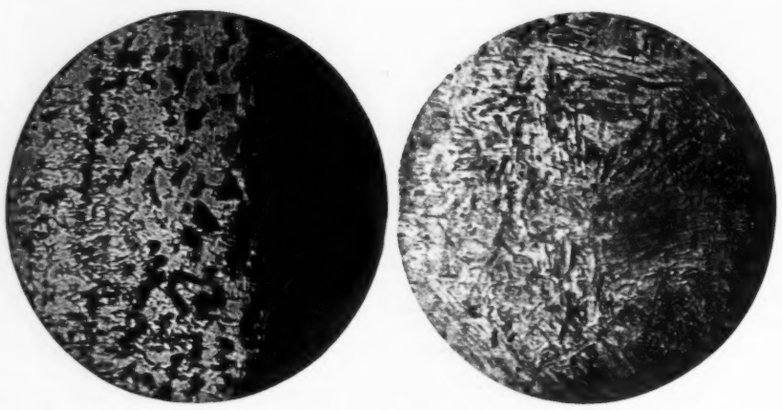


Fig. 125 (Left)—Edge of steel shown in Fig. 124, structure being ferrite and temper carbon. Etched microscopically. X 75. Fig. 126 (Right)—Core of steel shown in Fig. 124, structure being martensite. Etched microscopically. X 450

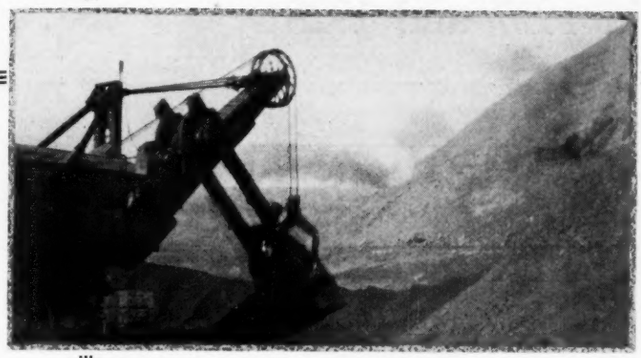
Figs. 127 and 128 show the polished section of a sample of steel case hardened at too high a temperature, the edge being overcarburized strongly. Cementite occurs here in large meshes which remain unattacked and white when etched with nitric acid while in a boiling solution of sodium picrate the cementite is colored black, as shown in Fig. 128.

An undesirable carburizing occurence is shown in Fig. 122. It represents a holder of an incandescent gas mantle broken in two. It was made of iron wire, as was customary in the beginning of incandescent gas illumination. During the burning of the flame the wire absorbed so much

(*Concluded on Page* 387)

[21]Brearley-Shaefer: Die Einsatzhaertung von Eisen und Stahl, 1926, and Die Werkzengstahle und ihre Warmebehandlung, 1924; also M. Schwarz: Bayerisches Industrie und Gewerbeblatt.

Figs. 127 and 128—Cross section through an overcarburized steel sample with large cementite crystals in the overcarburized edge zone. With nitric acid etching (left) the cementite appears white while with sodium picrate etching (right) it appears black. The edge of the test piece in each case is at the left



Leading all iron mines, the Missabe Mountain now is the world's largest producer, with 5,256,000 tons for 1928, nearly 10 per cent of Lake Superior total.

Annual Record of Lake Superior Mine Shipments

Iron Ore Tonnage Is Increased with Fewer Active Mines

Average Shipment Raised to 326,500 Tons in 1928— Eight Leading Properties Produce 32 Per Cent of the Total

By A. J. Hain

Associate Editor, Iron Trade Review

SHIPMENTS of all grades of iron ore from the Lake Superior district in 1928 amounted to 54,-are pointed with eagerness for 853,385 tons, an increase of 2,510,049 tons, or 4.79 per cent over 1927.

Shipments made in vessels for 1928 totaled 53,980,874 tons, a gain of 2,-873,738 tons, or 5.6 per cent.

The all-rail movement of ore dropped from 1,236,200 tons in 1927 to 872,511 tons in 1928. This unusual decrease, 29 per cent, resulted from the fact the blast furnace at Mayville, Wis., did not operate after January, 1928. Generally it takes large all-rail shipments from mines besides those from the Mayville mine. Lake shipments to Chicago and thence by rail to St. Louis increased, owing to the improved dock facilities at Chicago. This also reduced all-rail shipments from the ranges.

Shipments from the Mesabi range in 1928 totaled 35,398,648 tons; from the Menominee range 4,841,588 tons; Marquette range 4,298,705 tons; Gogebic range 6,542,212 tons; Cuyuna 2,-093,479 tons; Vermillion 1,671,327 tons, and from the Mayville-Baraboo range 7426 tons. All ranges increased shipments except the Menominee and Mayville-Baraboo. The gain for the Mesabi was 7.35 per cent; for the Marquette 3.5 per cent; Gogebic, 2.4 per cent; Cuyuna, 5.6 per cent, and for the Vermillion, 7.9 per cent. The Menominee range's shipments decreased 7 per cent. The Mayville-Baraboo range shipped 7426 tons in 1928, compared with 92,654 tons in 1927.

Average Mine Output Increases

Despite the increase in tonnage, the number of mines from which shipments were made in 1928 was 17 less than in the year preceding. The average for the 168 mines active in 1928 was 326,508 tons, 43,586 tons more than the average for the 185 that shipped ore in 1927. Demand was stimulated late in the season, and the additional requirements were supplied by stepping up operations at those mines which were active, instead of starting up other mines.

Shipments in 1928 from the six largest mines in the Lake Superior district reached a total of 15,635,268 tons. This is 30 per cent of all the ore shipped from the district. The six mines are on the Mesabi range. Their total of 15,635,268 tons compared with 19,454,738 tons, all that was shipped from all the other ranges, with their 96 active mines.

The leader in tonnage is the Missabe Mountain mine, a state owned property, operated by the Oliver Iron Mining Co., subsidiary of the United States Steel Corp. The Hull-Rust, heretofore the world's largest open pit iron ore mine, measured by annual shipments, has been sliding down the scale, while the Missabe Mountain has greatly exceeded the Hull-Rust's ship-

Shipments by Ranges

	1927	1928
Mesabi	32,974,157	35,398,648
Menominee	5,211,215	4,841,588
Marquette	4,151,868	4,298,705
Gogebic	6,383,408	6,542,212
Cuyuna	1,982,302	2,093,479
Vermillion	1,547,732	1,671,327
Mayville-Baraboo	92,654	7,426
Total	52,343,336	54,853,385
By lake	51,107,136	53,980,874
By rail	1,236,200	872,511

Official Record of Iron Ore Shipments from Lake Superior District in 1927 and 1928

MESABI RANGE

	1927	1928		1927	1928		1927	1928		1927	1928
Aad	45,117	23,712	Helmer	2,709	35,368	Miller	368,023		Smith	7,651	
Adams-Spruce Group	1,630,384	1,780,959	Higgins-McEwen	157,430	112,735	Missabe Mt.	4,913,045	5,255,947	South Agnew	299,924	328,422
Albany	222,689	204,716	Higgins No. 1 (Trespass)	350		Mississippi	107,537	201,388	South Tener (Trespass)		1,276
Alexandria	350,528	317,430	Hill Annex	783,330	906,505	Monroe-Tener	7,185		St. Paul	363,479	497,527
Arcturus	487,934	501,324	Hill Trumbull	516,385	488,897	Moose	64,766	14,477	Susquehanna	632,345	505,094
Bennett	612,152	499,415	Hoadley (Crosby)		101,881	Morris	1,388,499	1,432,370	Tyler	45,536	48,551
Biwabik	329,937	329,847	Hobart	49,877		Morrison	749,988	790,144	Union	134,369	9,594
Boeing	429,630		Hull-Rust	3,144,634	1,892,588	Morrow Extension*	4,191	12,347	Uno North	7,027	
Bruce	166,767	210,924	Itasca	9,957		No. Harrison	421,653	331,256	Uno South (G. N.)		198,120
Burt-Pool-Day	332,784	836,437	Kerr	306,441	259,424	Ohio	11,586		Utica	327,097	297,530
Chisholm	201,375	177,118	Kevin	1,767	61,923	Patrick	75,007	291,939	Wabigon	477,454	599,351
Corsica	404,081	399,384	Kinney	129,604	105,977	Quinn	8,052	131,548	Wacootah	37,504	480,872
Danube	302,762	312,707	Lamberton	68,144	87,468	Ruddy	20,221	15,202	Wade	140,155	298,431
Dean	84,592		Lone Jack	272,963		Sargent	292,428	291,606	Wanless	169,216	160,583
Duncan	5,219	5,352	La Rue	418,841	433,889	Sauntry-Alpena	255,577	529,333	Webb	91,773	33,121
Dunwoody	697,441	700,029	Laura	115,993	169,775	Scranton	403,969	404,548	Wellington	205,473	391,284
Fayal	610,238	651,650	Leetonia	87,432	97,901	Section 13-58-19	10,458	8,799	Whiteside (Trespass)	15,097	
Frantz	54,298	32,432	Leonidas	930,492	1,104,850	Section 14-58-19	1,403		York	101,211	100,989
Frazer		701,640	Lincoln	195,155	328,201	Sellers	1,647,561	2,441,002			
Glenn	246,283		Mace No. 2	216,742	37,338	Shada	143,367		Total	32,974,157	35,398,648
Godfrey	4,813	119,594	Mahoning	2,222,309	2,832,402	Shaw	122,328	124,937			
Harold	401,218	297,850	Margaret	31,180		Shenango	428,857	774,809			
Harrison	267,756	463,530	Mary Ellen	95,355	105,808	Shiras	211,842				
Hawkins	490,155	606,160				Siphon (Spring)	75,715	61,111			
Helen	50,345										

*Formerly Section 4-57-17.

MENOMINEE RANGE

	1927	1928		1927	1928		1927	1928		1927	1928
Aragon	218,017	250,487	Chapin	411,422	469,075	Monongahela	63,255		Tobin	67,945	66,949
Balkan	82,025	76,904	Davidson	245,425	251,282	Newman (formerly Youngs)	15,912	8,120	Virgil	12,904	22,334
Baltic	15,722	1,425	Fogarty	53,257	43,869	Odgers	185,106	42,499	Warner	152,334	156,346
Bates	156,225	151,392	Forbes	152,342	151,956	Penn Mines	353,435	395,898	Wauseca	41,306	75,543
Bengal	215,440	231,874	Genesee		699	Porter	410		West Chapin	5,621	12,022
Berkshire	298,997	253,329	Hiawatha	169,615	170,867	Richards	10,625		Zimmerman	180,706	157,223
Bristol (Claire)	402,917	332,578	Homer	182,431	195,747	Riverton Group	185,215	239,822	Total	5,211,215	4,841,588
Buck	150,585	45,443	James	302,848	233,004	Rogers	284,391	181,025			
Carpenter	8,858	76,147	Judson	146,956	151,449	Spies	3,264				
Caspian	282,891	247,039	Loretto	152,813	149,241						

MARQUETTE RANGE

	1927	1928		1927	1928		1927	1928		1927	1928
Archibald (Gwinn)	76.550	264,159	Francis	21,686	23,603	Maas	320,439	328,025	Richmond (old)	41,843	
Athens	247,078	320,200	Gardiner-Mackinaw	49,445	70,675	Maitland	66,925	47,576	Richmond (new)	149,610	153,556
Austin	65,348	9,483	Holmes	168,524	181,287	Mary Charlotte	120,562	165,572	Rolling Mill	167,191	37,341
Barnes-Hecker	78,778		Imperial	107,310	73,286	Morris-Lloyd	297,288	393,184	Stephenson	127,571	208,735
Cambria	111,780	139,898	Isabella	90,844	131,348	Negaunee	534,559	472,733	Volunteer	381,297	410,592
Cleveland-Cliffs Group	366,669	388,734	Lake Superior	250,433	215,468	Ogden	175,493	116,415			
Empire	75,575	95,765	Lucky Star (Trespass)		40	Princeton (Swanzey)	11,507	3,864	Total	4,151,868	4,298,705
						Republic	46,763	47,166			

GOGEBIC RANGE

	1927	1928		1927	1928		1927	1928		1927	1928
Anvil	7,699	2,853	Ironton	500,388	653,611	Palms	196,772	163,986	Wakefield	507,262	626,749
Cary	158,487	221,723	Keweenaw	175,877	119,468	Plymouth	606,900	556,401	West Davis	104,339	98,387
Davis	8,002	428	Massie	23,062	39,971	Puritan	187,325	255,706			
Eureka-Asteriod	375,095	553,083	*Montreal	970,957	1,169,120	Sunday Lake	349,788	370,038	Total	6,383,408	6,542,212
Geneva	4,261	17,323	Newport	654,007	591,904	Tilden	140,301	32,798			
			Norrie Group	1,326,989	1,053,467	Townsite	85,897	13,196			

*Includes former Ottawa mine.

CUYUNA RANGE

	1927	1928		1927	1928
Armour No. 1	284,466	247,556	Mangan		11,657
Armour No. 2	161,768	160,533	Maroco	222,333	159,941
Croft	164,844	181,623	Meacham	15,442	
Evergreen	15,309	151,435	Milford	149,834	161,431
Feigh	7,868	9,243	Merritt		2,942
Hillcrest		67,459	Sagamore	192,467	309,968
Hopkins-Sultana	237,672		Wearne		10,054
Ironton	77,105	56,375	Total	1,982,302	2,093,479
Louise	320,678	218,513			
Mahnomen	132,516	344,749			

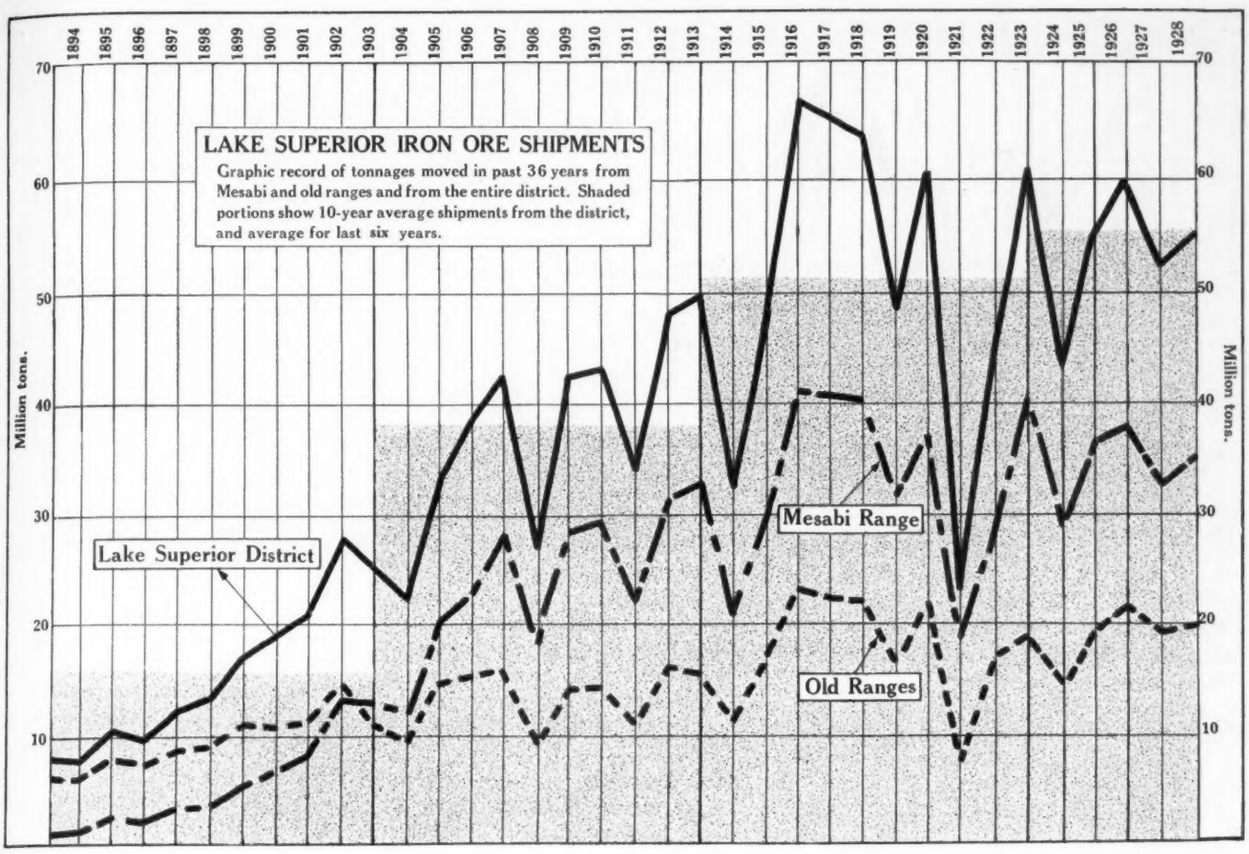
VERMILLION RANGE

	1927	1928		1927	1928
Chandler	65,198	47,168	Zenith	352,253	356,751
Pioneer	564,512	671,258			
Sibley	407,229	431,189	Total	1,547,732	1,671,327
Soudan	158,540	164,961			

MAYVILLE-BARABOO RANGE

	1927	1928		1927	1928
Mayville	92,654	7,423	Total	92,654	7,423

	1927	1928
GRAND TOTAL	52,343,336	54,853,385


LAKE SUPERIOR IRON ORE SHIPMENTS
Graphic record of tonnages moved in past 36 years from Mesabi and old ranges and from the entire district. Shaded portions show 10-year average shipments from the district, and average for last six years.
Lake Superior District
Mesabi Range
Old Ranges
Million tons.
Million tons.
1894 1895 1896 1897 1898 1899 1900 1901 1902 1903 1904 1905 1906 1907 1908 1909 1910 1911 1912 1913 1914 1915 1916 1917 1918 1919 1920 1921 1922 1923 1924 1925 1926 1927 1928
10 20 30 40 50 60 70

ments for the last three consecutive years. The Oliver company devoted years to developing the mine. At the Hull-Rust present operations will not be greatly enlarged, at least not until the "North 40," once occupied by the village of Hibbing, is further developed for mining.

The Missabe Mountain shipped 5,255,947 tons in 1928, 14.8 per cent of all the ore that came from the Mesabi range, and 9.5 per cent of the total from all the ranges. More ore was shipped from the Missabe Mountain in 1928 than from either the Marquette or Menominee range.

Following is a list of mines which shipped 1,000,000 tons or more in 1928, showing the Hull-Rust fourth in the order of importance:

	Gross Tons
Missable Mountain	5,255,947
Mahoning	2,832,402
Sellers	2,441,002
Hull-Rust	1,892,588
Adams-Spruce	1,780,959
Morris	1,432,370
Leonidas	1,104,850
Norrie Group	1,053,467

The Oliver company in 1928 increased its shipments 7.7 per cent to 23,172,465 tons. This represents 42.2 per cent of the total tonnage moved from the Lake Superior district. Its proportion in 1927 was 41.1 per cent, and in 1926 43.4 per cent. This company's shipments since 1908 amount to 457,758,040 tons. Total shipments from the Lake Superior district since the opening of the ranges are 1,401,106,150 tons, as shown by IRON TRADE REVIEW'S official mine reports.

Only one new mine in the Lake Superior district began shipments in 1928. The Frazer, Mesabi range, recently developed by the Oliver company, started with 701,640 tons. The Ford Motor Co.'s Imperial mine, Marquette range, shipped only 73,286 tons, while no shipments have been made as yet from the company's new mine, the Blueberry, in the same range. The Mesabi Iron Co.'s plant for sintering magnetic iron ore continued idle in 1928.

The amount of iron ore beneficiated in 1928 was 20,305,920 tons, compared with 19,068,211 tons in 1927. The following shows the tonnages beneficiated by the various methods used:

	1927	1928
Washing	4,766,997	5,296,789
Jigging	76,400	106,854
Sintering and nodulizing	107,950	319,471
Drying	190,543	125,388
Total concentrated	5,141,890	5,848,502
Crushing and screening	13,926,321	14,457,419
Total beneficiated	19,068,211	20,305,921

Crushing and screening improves physical structure only, and does not change chemical analysis.

IRON TRADE REVIEW again collaborated with the Lake Superior Iron Ore association in compiling the 1928 figures. Consistent with the records it has compiled since the earliest nine reports were made, IRON TRADE REVIEW does not include in current year's record of shipments the ore held in dock at the close of the season, or ore lost in transit. At the close of 1927, 8492 tons was left in dock, this being accounted for in the 1928 record. At the close of 1928, 8396 tons was left in dock. In 1928, 2352 tons was lost in transit. These items account for differences between the association's figures and those as here set forth by IRON TRADE REVIEW.

Chart Gives All Iron Ore Shipments

IRON TRADE REVIEW'S complete chart of Lake Superior iron ore shipments from the opening of the various mines to date will be ready for distribution soon. The chart, 28 x 31 inches, is a standard reference work which has proved valuable innumerable times to those companies which subscribe for it. Many companies use a number of them in their operating, shipping and sales departments. The new chart may be obtained by addressing IRON TRADE REVIEW, *Penton building, Cleveland, and enclosing* $2.

New Books Worth Reading

SCIENCE ECONOMICS BUSINESS

Repels Attack on Advertising

Dollars and Sense, by Charles E. Carpenter; 256 pages, 5 x 7½ inches, cloth; published by Doubleday, Doran & Co. Inc., Garden City, N. Y., and supplied by IRON TRADE REVIEW for $2, postpaid, and in Europe by Penton Publishing Co. Ltd., Caxton House, London, for 10s, net.

"Your Money's Worth," a recent publication setting forth ideas of a certain school as to modern methods of merchandising, touched a responsive chord in the heart of the author of "Dollars and Sense." The response was like cause and effect, equal and in the opposite direction.

Mr. Carpenter has been known long as a vigorous proponent of his ideas and they usually are based on arguments well founded in his experience. That he has some pet hobbies and notions detracts nothing from his argument on the main issue. No one is left in the dark as to his beliefs. He does not pussyfoot.

In his book he takes "Your Money's Worth" to task idea by idea and presents the other side of the shield. He strikes back with gusto at the claim that advertising creates false demands. He asserts that advertising shows how life may be made happier, and "happiness, not economy, is the aim of life" is his assertion. Standardization is anathema to him, stifling originality and taking away incentive. He rides this hobby over every obstacle of the steeplechase and keeps his seat.

"Bunk" in advertising he abhors, but its purpose to tell people what things are available to increase the sum total of their happiness and comfort he lauds. Advertising is inherent and aborginal, he argues. By his bark the dog advertises his desire to have the door opened. A call for help is advertising. To advertise by printer's ink is simply making use of the modern means, but it is the same process. "Those who sell commodities with the help of advertising are, as a class, of a higher grade normally than those who do not," he says, and then refutes the idea that advertising is wholesale swindling by playing on the sacred emotions of the human heart, as suggested in the volume under attack.

Canned soup has been advertised into an output of millions of cans daily. Who would have heard of canned soup except for the advertising? Advertised articles must fulfill claims made for them or the advertising is wasted and the market ruined. Arguments of this sort bristle from the chapter devoted to this subject.

The final chapter is devoted to the quest for happiness and the author argues that modern ways of manufacturing and selling have made the United States the happiest and most prosperous nation in the world, with learning, leisure and the material things to greater degree than any other people, because of advertising and high ethics of business.

British Mechanical Practice

Mechanical World Year Book, published by Emmott & Co. Ltd., Manchester, Eng.; cloth, 348 and 166 pages, 4 x 6 inches; supplied by IRON TRADE REVIEW for 50 cents and in Europe by Penton Publishing Co. Ltd., Caxton House, London for 1s 6d, net.

This annual publication has been enlarged by addition of new sections, with all the former chapters retained, though brought to date by changes and additions. Helical springs are treated in an effort to eliminate many calculations usually necessary. Flywheel proportions and compressed air sections have been added. Tables have been added on mild steel tubes, wire ropes for cranes, and valve end rods.

To Be Reviewed in Later Issue

What Government Costs

Cost of Government in the United States, the National Industrial Conference board: cloth; 109 pages, 6 x 9 inches; published by the board and supplied by IRON TRADE REVIEW at $3.50, postpaid.

Utilizing Electric Drive

Electric Drive Practice, by Gordon Fox; cloth; 419 pages, 5¼ x 8 inches; published by McGraw-Hill Book Co. Inc., and supplied by IRON TRADE REVIEW.

Preparation of Coal

Cleaning of Coal, by W. R. Chapman and R. A. Mott; 680 pages, 6 x 9½; cloth; published by Chapman & Hall Ltd., London, and supplied by IRON TRADE REVIEW for $10.50.

Business the World Over

A Picture of World Economic Conditions, cloth, 119 pages, 6 x 9 inches; published by National Industrial Conference board, New York, and supplied by IRON TRADE REVIEW for $2 postpaid, and in Europe by Penton Publishing Co. Ltd., Caxton House, London, for 10s, net.

To meet the broadening and deepening of American interest in foreign countries, following development of international trade and finance, the National Industrial Conference board has initiated a series of volumes to present the economic status of leading countries. This is the first volume of the series, the second being planned for March, 1929. The current volume contains a summary review of conditions in the principal countries of the world, based on special information received from foreign correspondents of the board and other authoritative sources.

In performing its function of assisting American industry by better knowledge of economic conditions and trends, the board has felt it desirable to keep itself currently informed regarding conditions abroad. To this end it has enlisted the co-operation of a number of men with intimate knowledge, wide experience and high standing in the economic life of their respective nations as foreign correspondents. Through these contacts the board expects to receive current

(*Concluded on Page* 402)

Is New Era in Machine Tools Near?

WITH one month of 1929 already in the discard machine tool builders and users are pointed with eagerness for whatever the balance of the year may bring to the design, construction and operation of machine tools. Such materials as Carboloy and Widia Metal seem to be entrenched as the heralds of a new era in cutting tools, the influence of which doubtless will be reflected eventually in many classes of machinery. The higher operating speeds which these materials permit require increased attention to problems of bearings, rigidity, feeds, etc.

In this connection it is interesting to observe the attitudes of those directly connected with the industry. A factory superintendent of a large manufacturer of agricultural implements states that his company recently adopted a machine tool standard form which requires that all tools purchased by the company be equipped with:

(a) Antifriction bearings throughout.

(b) Hydraulic feeds.

(c) Hardened ways.

(d) Self-contained lubricating systems.

(e) Balance wheels.

The company met some resistance with this program on the part of machine tool manufacturers who felt that the purchaser was dictating how to build the machines. However, it was proved that the ideas were sound and would produce a more efficient machine. Hence it was to the builder's advantage to incorporate them in his design.

Of course these principles are not new by themselves but the combination of all of them in one machine was the aim of this manufacturer and the response met from a few builders was 100 per cent.

Lately many machine tool builders have adopted these principles as standard on their product and it now seems likely that in time these features will be considered standard on the majority of high grade tools.

Another feature of modern machine tool design is the reduction of the number of parts on a machine. The aforementioned manufacturer of agricultural implements describes a vertical semiautomatic broaching machine installed in his shop. The machine occupies about 20 per cent of the room of a horizontal broaching machine and has less than 10 per cent of the mechanical parts of other broaches. It

(*Concluded on Page* 401)

Iron Trade Review's Calendar of New Equipment

Item	Comment	Builder	No.	Date Described	Page
Furnace	Electric continuous conveyor type; U-shaped	General Electric Co.	8	Jan. 17	205
Crane	Electric traveling crane; all arc-welded	Box Crane & Hoist Corp.	9	Jan. 17	205
Crawler crane	Convertible crane and shovel; ½-yard capacity	Thew Shovel-Universal Crane Cos.	10	Jan. 17	205
Vise	Chain pipe vise with overhead adjustment	J. H. Williams & Co.	11	Jan. 24	272
Grinding machine	Centers will handle work 72 inches in length	Brown & Sharpe Mfg. Co.	12	Jan. 24	272
Welder	Small electric arc type; operates from alternating current	J. C. McAdams Co. Inc.	13	Jan. 24	272
Electric motor	Totally enclosed, fan-cooled; squirrel-cage type	Westinghouse Electric & Mfg. Co.	14	Jan. 24	273
Saw	Circular metal cutting saw; cuts tubing and formed metal	DeWalt Products Corp.	15	Jan. 24	273
Switch	Push-button type for motor starter control	Lincoln Electric Co.	16	Jan. 31	328
Gear cutter	New features incorporated in automatic machine	Brown & Sharpe Mfg. Co.	17	Jan. 31	328
Crawler crane	New boom style; crane, clamshell, dragline or shovel	Thew Shovel Co.	18	Jan. 31	329
Switch	Radial rheostat type for varying field currents	General Electric Co.	19	Jan. 31	329
Coupling	Air hose coupling; 1-inch diameter; light weight	Robinson Machine Co.	20	Jan. 31	329
Switches	Magnetic starting and protective switches	General Electric Co.	21	Jan. 31	329
Drive fittings	High-pressure type; installed in open oil holes	Alemite Mfg. Co.	22	Feb. 7	400
Blowpipe	For welding work on airplane fuselages	Oxweld Acetylene Co.	23	Feb. 7	400
Crane	Locomotive type; gasoline, diesel or electric drive	Link-Belt Co.	24	Feb. 7	400
Stoker	Multiple retort underfeed stoker	Combustion Engineering Corp.	25	Feb. 7	400
Wrenches	Socket wrenches made up into several sets	Blackhawk Mfg. Co.	26	Feb. 7	401
Electric control	Time-current principle; 250 volts or less	Electric Controller & Mfg. Co.	27	Feb. 7	401
Grinder	Full automatic reversible cup wheel grinder	Samuel C. Rogers & Co.	28	Feb. 7	401

High-Pressure Fittings for Open Oil Holes

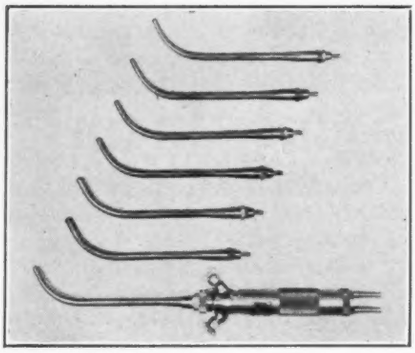
No. 22

Alemite Mfg. Co., Corp., 2650 North Crawford avenue, Chicago, announces the development of a series of drive fittings for all open oil holes, designed to standardize the lubrication of all types of machinery. The high-pressure fittings are installed by inserting a nipple with a ball check valve into a reverse feather-edged bushing which has been driven into the open oil hole. The bushing are made in 1/64-inch sizes to fit ⅛ to ½-inch open oil holes. The bushings are made for countersunk holes and for thin housings. An ordinary hammer and a set of three special drive tools, as shown in the accompanying illustration, form the complete equipment for installing this lubrication system into open oil holes. Lubrication is applied by a hand-operated compressor which introduces the lubricant to the bearing surfaces under 2000 to 5000 pounds per square inch pressure. The fittings are claimed to bring about a considerable gain in lubrication efficiency and economy.

Welding Blowpipe Built for Airplane Work

No. 23

Oxweld Acetylene Co., 30 East Forty-second street, New York, recently has placed on the market a welding blowpipe designed especially for airplane fuselage welding. It is of the injector type and can be used on a low-pressure acetylene supply. As shown in the accompanying illustration, seven welding heads are supplied with the blowpipe. They are



No. 23—Welding blowpipe outfit

equipped with copper tips to withstand high temperatures, and curved to permit reaching the ordinarily inaccessible places encountered in aircraft welding. The welding head is connected to the body of the blowpipe with a double conical seat and is held in place with a knurled head nut. Oxygen and acetylene hose lines 3/16-inch in diameter are connected directly to the blowpipe and valves for adjusting the pressure of these gases are placed on the handle in such a position that they can be operated by the thumb and forefinger of the hand holding the blowpipe. The various welding heads all are designed for a constant oxygen pressure of 20 pounds per square inch. The blowpipe weighs slightly over 9 ounces with the largest tip attacheed. Oxweld Acetylene Co. also announces that it has added to its line of accessories for oxyacetylene welding and cutting, gauntlet gloves of pliable suede leather specially treated to prevent heat from affecting it. The gloves are reinforced by a leather strip on the thumb seam and a semicircular strip covering the entire back between the fingers and gauntlet.

Locomotive Crane Driven by Gasoline Motor

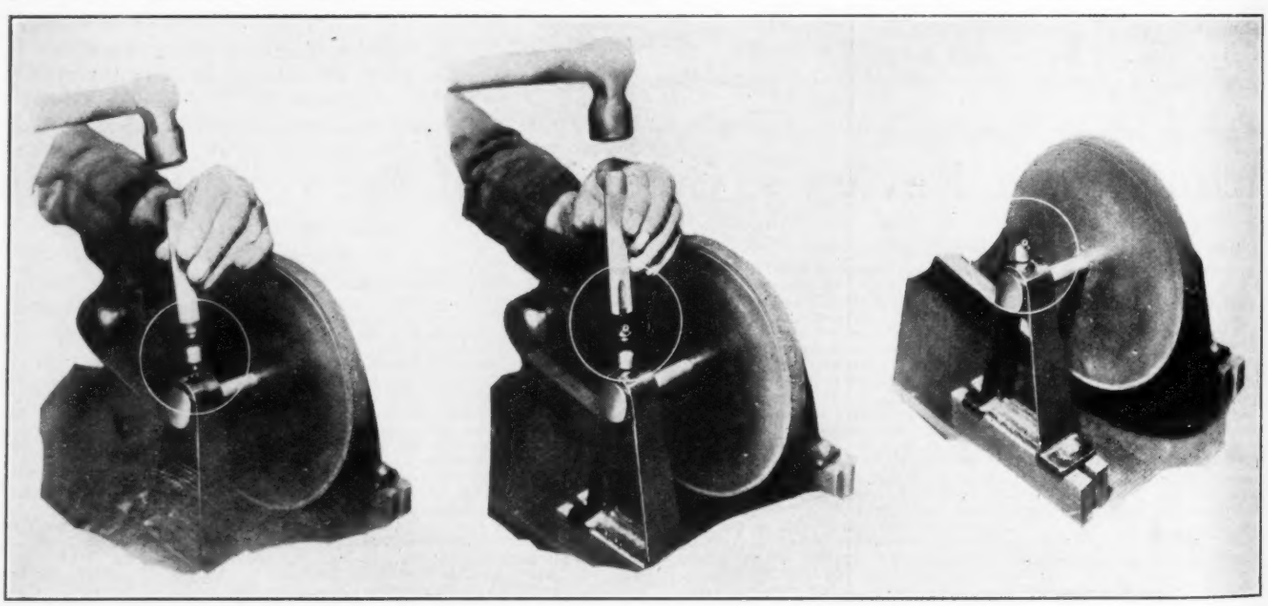
No. 24

Link-Belt Co., 910 South Michigan avenue, Chicago, announces the development of a complete line of locomotive cranes designed especially for gasoline engine, diesel engine or electric motor drive. The machinery and its arrangement are said to be particularly adapted to direct engine drive and all clutches, brakes, shafts, bearings and gears are made oversize in an effort to give the best operating results. Drive from the engine is a totally enclosed silent chain drive and all upper frame gears have machine cut teeth, cut from solid blanks. The unit is furnished with a two-speed travel gear to give a high speed for traveling light and a slower speed for pulling heavy loads or ascending comparatively steep inclines. The two-speed travel gear does not affect the hoisting, boom hoisting or rotating speeds of the machine.

Multiple Retort Stoker Is Underfeed Type

No. 25

Combustion Engineering Corp., 200 Madison avenue, New York, recently has developed a new multiple retort underfeed stoker. Replacement of parts subject to wear or burning such as ram box liners and upper sections of auxiliary rams, retorts, tuyeres and grate bars has been facilitated by the new design. Proportioned to the heavy construction of the main part of the stoker the two-speed gear box is machined throughout. A hand lever on the front of



No. 22—Method of installing high-pressure lubrication fitting in open oil hole of shaft bearing

the gear box operates the clutches, permitting the stoker speed to be changed conveniently without stopping. Design of the ram box allows the depth of the retort to be proportioned to the length of the stoker. This is accomplished by adding tuyeres at the top of the retort instead of at the bottom. Auxiliary rams in the retorts receive their motion from an oscillating link which is operated from a connection to the main ram. Grate bars at the end of the stoker have a variable travel and move in sections. The motion of these grate bars, being opposite to the direction of the auxiliary rams, serves to clear the ash from the end of the stoker. Each retort is built up to provide for expansion and to minimize the possibility of cracking. Zone control of the air pressure is afforded by the use of separate air compartments extending across the width of the stoker. The amount of air pressure may be suited to the thickness of the fuel bed directly over any particular air compartment. The stoker is recommended for burning all grades of coking bituminous coal.

Announces New Sets of Socket Wrenches

No. 26

Blackhawk Mfg. Co., Milwaukee, recently has prepared several new sets of socket wrenches embodying certain improved features. Sockets are of the double hexagon type and may be used as either detachable or securely locked on the handle. They are made of chrome vanadium steel and are chromium plated. The sets of wrenches are furnished in a special metal case of heavy gage steel and are made up with several combinations of wrenches. One set contains 30 handle attachments and sockets. Another contains 16 while a third comprises a selection from the first two together with six engineers' wrenches and four tappet wrenches.

Time-Current Control Is New Development

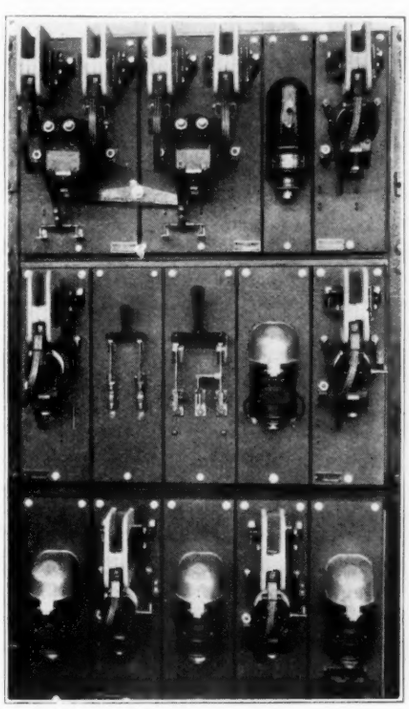
No. 27

Electric Controller & Mfg. Co., 2700 East Seventy-ninth street, Cleveland, has announced the development of a new system of electric control, known as the time-current control, differing from time limit and current limit control methods. Operation of the device hinges on the application of an acceleration relay. The control, under normal working conditions, is claimed to accelerate, stop, reverse and reaccelerate motors as fast as load conditions will permit. Under abnormal conditions the control lengthens the time interval of the acceleration steps, giving the motor more time to get under way. Only one moving part is incorporated in the acceleration relay, that being an aluminum sleeve carrying the contact bar. Shunt contactors of new design and an improved plugging relay are embodied in the unit, a front view of which is shown in the accompanying illustration. Operating coils are designed for continuous operation on the standard voltages, 250 volts or less. The time-current control, although adjustable for time, is said to be entirely automatic in operation and to require no adjustment. Mill table drives, screw downs and overhead cranes are typical examples of applications for the new control.

Develops New Cup Wheel Reversible Grinder

No. 28

Samuel C. Rogers & Co., 191-205 Dutton avenue, Buffalo, has placed on the market a new full automatic cup wheel grinder, adapted for grinding all kinds of straight knives, against the cutting edge or away from the cutting edge. Base and column are cast in one piece, on which is mounted the bed, slide and knife table and in which the main operating parts are enclosed. The top is supported by three longitudinal bearings. A back bearing is an added feature and is provided with an adjustable steel gib 1 inch wide for taking up wear. The miter gear, rack and pinions are cut from solid steel. Travel of the table is at the rate of about 40 feet per minute and is adjustable to suit the length of knife being ground. The machine is made in five sizes ranging from 26 to 54 inches. All are equipped with a 10-inch cup wheel which has a surface speed of about 3300 feet per minute. The unit is furnished with the arbor mounted on ball or sleeve bearings and with a 1-horsepower built-in motor and starting equipment.



No. 27—Time-current control

Is New Era in Machine Tools Near?

(*Concluded from Page* 399)

broaches in a natural manner in that the weight of the broach does not hang on one side of the work. Operation is entirely automatic, the man running the machine merely having to feed the material in and take it out. Production of the broach is claimed to be from two to 20 times that of other types of broaches.

This same manufacturer also describes an automatic turret lathe which he uses, an adaptation of a standard turret lathe to an automatic machine by the use of a hydraulic oilgear apparatus in which the oil gear is built integral with the machine and does not have even a separate individual motor. Indexing is all automatic and one operator can handle six or eight machines if long and heavy work is being machined. That is, the number of machines an operator can handle depends on the length of each machine operation. One of the big advantages which is claimed for this machine is that both cross-slides for roughing and finishing can be operated simultaneously with or independent of the turret or not at all, according to the necessity of the tool setup.

And what of the future? One man's vision of the machine tool of tomorrow is a unit with antifriction bearings at all points; all hydraulic feeds; hardened steel ways or superhardened chilled ways that can be machined by the new cutting alloys previously mentioned; complete automatic operation; dove tail slides eliminated entirely; and all gearing hardened and heat treated.

As a means of saving on floor space and reducing inventory and costs, the possibility is suggested that in mass production where the quantity warrants, large base machines will be built on which will be attached the different units interchangeable for boring, drilling, turning and machining.

Book Reviews

(*Concluded from Page* 398)

reviews and on these will be based the occasional publication of these volumes.

* * *

New Standards Are Adopted

1928 Supplement to Book of A. S. T. M. Standards, by the American Society for Testing Materials; paper, 195 pages, 6 x 9 inches; published by the society and supplied by IRON TRADE REVIEW for $1.50, and in Europe by Penton Publishing Co. Ltd., Caxton House, London, for 7s 6d, net.

This is the annual supplement to the triennial book of standards issued by the society. It presents ten revised and 31 newly adopted standards. These standards are for both metallic and nonmetallic materials. The two classes are separated to make it easy for the user to discard the portion which may not be of interest.

Structural Engineers for Institute Standards

F. A. Burdett, president, Structural Engineers society of New York, has notified the American Institute of Steel Construction that his society has approved the standard specifications of the New York building congress for structural steel. This incorporates bodily the standard specifications of the institute. Mr. Burdett was a member of the committee of the building congress which drafted the specifications for that body. The specifications will hereafter govern contracts signed by the members of the New York society. These specifications have also been approved by the American Institute of Architects and by the Structural Steel Board of Trade of New York.

Metallography for Use in Small Shop

(*Concluded from Page* 394)

unburned carbon that the upper part within the flame was swollen from a diameter of 3 millimeters to 4.7 millimeters. The structure of the mantle holder at the lower uncarburized end, shown in Fig. 121, consists of small crystals of ferrite and pearlite, while that of the club-shaped swollen part, shown in Fig. 123, consists only of pearlite and temper carbon. In addition the crystal grains have grown enormously compared with their original size. Lines *a-a* in Figs. 121 and 123 are the circumference outlines of the circular section. On account of this large accumulation of carbon and the long annealing time the swollen end became so brittle, in contrast to the soft, flexible and uncarburized lower end, that the mantle holder could be broken by a slight pressure.

More recently, case hardening by nitriding has gained importance for some special steels where it is necessary to obtain great surface hardness without having to heat the pieces above 650 degrees Cent. In this manner, a warping of the treated piece is avoided so that this process seems suitable for case hardening gages, scales, etc.[22]

Heat Treatment of Steel Has Been Filmed

The department of commerce, Washington, has added "The Heat Treatment of Steel" to its library of education motion picture films and is loaning this film through the Pittsburgh experiment station of the bureau of mines. The film was made under supervision of the bureau of mines in co-operation with one of the large automobile manufacturing companies. It is brought out that about 1475 separate steel parts of a typical automobile must be given special heat treatment. The old time method of tempering steel, with anvil and forge, when the color of the metal alone indicated the degree of tempering, are contrasted with the specially-designed furnaces and the precision of control utilized today.

Magnetite Mining Costs

A report on the method and cost of mining magnetite in Mineville, N. Y., just issued by the United States bureau of mines, is the first of a series of papers to be issued dealing with mining methods and costs in the metal mines of the country. These papers are being prepared by officials and engineers of mining companies, in co-operation with the bureau of mines, and in accordance with an outline prepared by the bureau for the purpose of securing uniform and comparable data. After a sufficient number of these papers have been prepared, it is planned to issue a series of bulletins dealing separately with each mining method and with particular phases of the general subject.

[22]Stickstoffhaertung des Eisens, Stahl und Eisens, by A. Fry, *Stahl und Eisen,* Vol. 42, page 1656, 1922; Vol. 43, page 1271, 1923.

Small Plants Humanizing Employe Relations

Organized programs for the improvement, regulation and humanizing of employer-employe relations in industry, originally associated almost entirely with large organizations, of late have spread into the smaller plants to a surprising extent, according to the National Industrial Conference board. This development is said to be "one manifestation of the general tendency away from the haphazard and toward the organized way in all detail of industrial operation."

For the purpose of this study the board included all plants employing up to but not exceeding 250 wage earners. The small manufacturing plant numerically still is the typical unit in America, the total number constituting 96½ per cent of all manufacturing establishments. As regards the number of workers affected, however, the place of the small plant is not as important as its numerical superiority would imply, as the 3½ per cent with more than 250 wage earners each employ more than 53 per cent of the total number of wage earners engaged in manufacture.

"A broader attitude toward human relationships and a constructive, carefully considered program of industrial relations activities may possibly be an even greater need in small plants than in large establishments," the board says. Results indicate industrial relation activities properly managed are not conducted at the expense of the payroll, and they yield a definite return in productive efficiency.

Awarded Lamme Medal

Announcement has been made by the American Institute of Electrical Engineers that the first 1928 Lamme medal has been awarded to Allen Bertram Field for "mathematical and experimental investigation of eddy current losses in large slot-wound conductors in electrical machinery." Mr. Field is consulting engineer, Metropolitan-Vickers Electrical Co. Ltd., Manchester, Eng.

8 Billions for Building

According to a survey made by the Copper and Brass Research association, approximately $8,500,000,000 will be expended during 1929 for new construction, repairs and replacements in the building field. This exceeds by approximately $500,000,000, expenditures for these purposes in 1928. If consummated, this program will establish a new record.

Editorials

New Era Opens for Wrought Iron

REVOLUTIONARY changes in manufacturing processes during the past few years have been numerous. The wrought iron industry is the latest to be explored. At Warren, O., balls of puddled iron weighing 2000 pounds are being made, as explained elsewhere in this issue. Yet no puddling furnaces are employed. Rabbles and bars are cast aside. Puddlers and their helpers are missing. The process upsets precedent inasmuch as the material is produced synthetically in separate but closely related steps.

Pig iron is melted in a cupola and refined in a bessemer converter. An open-hearth furnace supplies molten slag. Refined metal is poured into a thimble containing the slag and, as by a touch of magic, slag-coated globules of iron become joined in the bottom of the thimble in a spongy mass weighing a ton. This is accomplished in three minutes; balling in the hand-puddling furnace requires 45 minutes.

Four thousand tons of this material passes over the scales a month in the form of muck bars. This is equivalent to the monthly output of 88 single puddling furnaces. And yet there is no limit to output save the size and number of balling thimbles used. With output on a quantity basis the cost of producing wrought iron will be lower and a demand for the product created.

Quality is not a source of worry because each step is under metallurgical control. Greater refinement of metal and wider distribution of slag is afforded by prolonged reduction in the roughing and finishing mill rolls because of larger blooms handled. Consequently, piling as practised in hand puddling, will not be necessary to obtain the desired fibrous structure. Conversion costs also will be along more economical lines. No additions of spiegeleisen, ferromanganese, etc., are made in the converter. No ingot molds are used. Soaking pits are needless. Ingot croppage due to pipes and blowholes is not encountered.

Experiments still are being conducted at Warren, O., but so confident are the operators as to the success of the process that several million dollars are being expended for a plant at Ambridge, Pa., to afford mass production. Certainly the new synthetic process of wrought iron manufacture should awaken those associated with the industry to a broader realization of the commercial possibilities, which will exist, the nearer production costs approach those of steel.

Good Car Year Seems Assured

WITH January apparently the best month in more than a year, carbuilders have tangible cause for greater optimism. With returns still incomplete, January orders for freight cars approximate 13,000. More than 19,000 cars are actively pending.

Including the projects in a formative state, the contemplated purchases alone come close to equally one-half of all the freight cars placed by domestic lines in all of 1928. Nevertheless, carbuilders are restrained in their forecasts for the 1929 total.

Such important factors as the relatively small net in car retirements and the slight change in car loadings over the past two or three years are among other considerations not easily overlooked.

The financial position of the railroads, while showing some improvement, is yet unsatisfactory to carriers, with Class I railroads earning only 4.65 per cent in 1928.

Notwithstanding average purchases over the past 28 years or so of 130,000 to 135,000 cars annually, most leading carbuilders would be satisfied if 1929 bookings reached 100,000 cars; in fact, considering the size and construction of the modern car, if the average for the next five years approached that figure.

Meanwhile, steelmakers in important districts stand to benefit. The proposal to bar the interchange of all-wood cars from one line to another is being reflected in almost every new purchase.

Fewer Mines, Ship Larger Tonnages

THE world's largest iron ore mine today, measured by shipments, is not the Hull-Rust, which long held undisputed claim to that title, but the Missabe Mountain mine, a neighbor of the Hull-Rust, and with some kinship by reason of being operated by the same company, the United States Steel Corp.'s iron ore subsidiary.

The Oliver Iron Mining Co. spent millions of

dollars, and devoted years of work to stripping and otherwise developing this property, which is owned by the state of Minnesota, and on which royalties are paid for the iron ore. Now witness what can be accomplished at the mine: Shipments in 1928 reached 5,255,947 tons, representing 14.8 per cent of all the ore forwarded from the Mesabi range, and nearly 10 per cent of the total from the entire Lake Superior district. The Missabe Mountain was a larger producer in 1928 than the whole of the Marquette or the Menominee ranges.

This was the third consecutive year the mine exceeded the record of the Hull-Rust. The latter dropped to fourth in the list of important shippers. Special efforts late in the season afforded a test for some of the leading mines. The Mahoning, owned and operated by independent interests, came in second with 2,832,402 tons.

Six mines on the Mesabi range shipped as much as all of the 96 active mines on the other ranges, combined. Ease of shipments from great open pit properties and moderate cost of haulage down the lakes are the contributing reasons for low prices of iron ore in the face of a diminishing supply. IRON TRADE REVIEW'S annual record of mine shipments, beginning on page 395, shows that fewer mines are being operated, but their capacity far exceeds normal requirements of the blast furnaces.

Federal Regulation an Intrusion

PROPOSAL to regulate the mining and transportation of bituminous coal by a federal commission is being considered by the United States senate committee which investigated the anthracite mining situation several months ago. Much blowing of trumpets accompanied the former inquiry, until it was apparent that the United Mine Workers' attorneys were conducting the inquiry, with the senators simply listening.

The present hearings have not been broadcast. In fact, they have been kept somewhat under cover and the public has heard almost nothing of them. The bill the senate committee is considering has the full approval of the United Mine Workers and is opposed by coal operators. These attitudes toward regulation are to be expected.

But the third party, the American people, has a different reason for opposing such a move. Such a piece of legislation would constitute one of the most radical departures from precedent and principle in the history of the country. The assumption that, since coal is transported in interstate commerce, its mining can be federally controlled seems to rest on insecure foundation. Most steel and iron is transported similarly, yet no move to regulate its production has been heard. The same is true of almost any branch of industry.

Government interference in private enterprise is especially to be deplored since the mining industry has made considerable progress in curing its own ills. Realizing that there are too many mines and too many miners, the largest producer has closed its least efficient mines and has given full-time employment to most of its men, at satisfactory wages.

Rights of consumers and taxpayers should weigh heavily in this decision. Aside from the expense of such regulation, other features throw an ominous shadow which should be reckoned with.

Scrap Dealers Entering New Era

MORE rational conduct of the iron and steel scrap business is being undertaken by leaders in that branch of trade. The industry has developed many abuses natural to as primitive a process as it has been in the past. Now that the business of collecting and selling scrap has assumed a more important place and is recognized as one of the raw material sources, equally with pig iron, coke and other materials, it has grown up and needs to adopt other and better methods.

The current movement to organize dealers in a widespread institute is on a more pretentious scale than previous efforts, and aims of the organizers have been set high. The effort is being made to sell the truth that interests of buyers and sellers are identical and that best ends are served when each is able to make his own profit. The scrap men are asserting that service to the steel mill is their object, with a profit for their efforts.

Many abuses have been eradicated in the past few years and now it is hoped to eliminate cut-throat competition and speculation, disorganized methods, and profitless prosperity. It is purposed to substitute business methods, co-operation and intelligence in handling the vast tonnage passing through the hands of scrap dealers annually. Less tonnage, with a profit on every car, is deemed better than a heavy tonnage with losses that virtually balance profits.

Past efforts to better conditions in this industry have met the approval and assistance of consumers and the present movement also will receive such aid as can be extended from the outside. But the problem now, as always, is for the dealers themselves to solve. Recognition of the profit they can derive from better conditions will be of much assistance in furthering the movement.

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Wrought Iron Obtained by New Process. Page 381.

IN LAST week's issue of IRON TRADE REVIEW there was a clear description of making wrought iron by hand puddling. It was an interesting introduction to the leading article in this issue, describing a new process for manufacturing wrought iron, without puddling. Pig iron is melted in a cupola. It is refined in a bessemer converter. A separate bath of slag is made in an open-hearth furnace. The refined iron is poured into the slag, a reaction being obtained similar to that in a puddling furnace. Will hand puddling, over a century old, give way at last to more mechanical methods?

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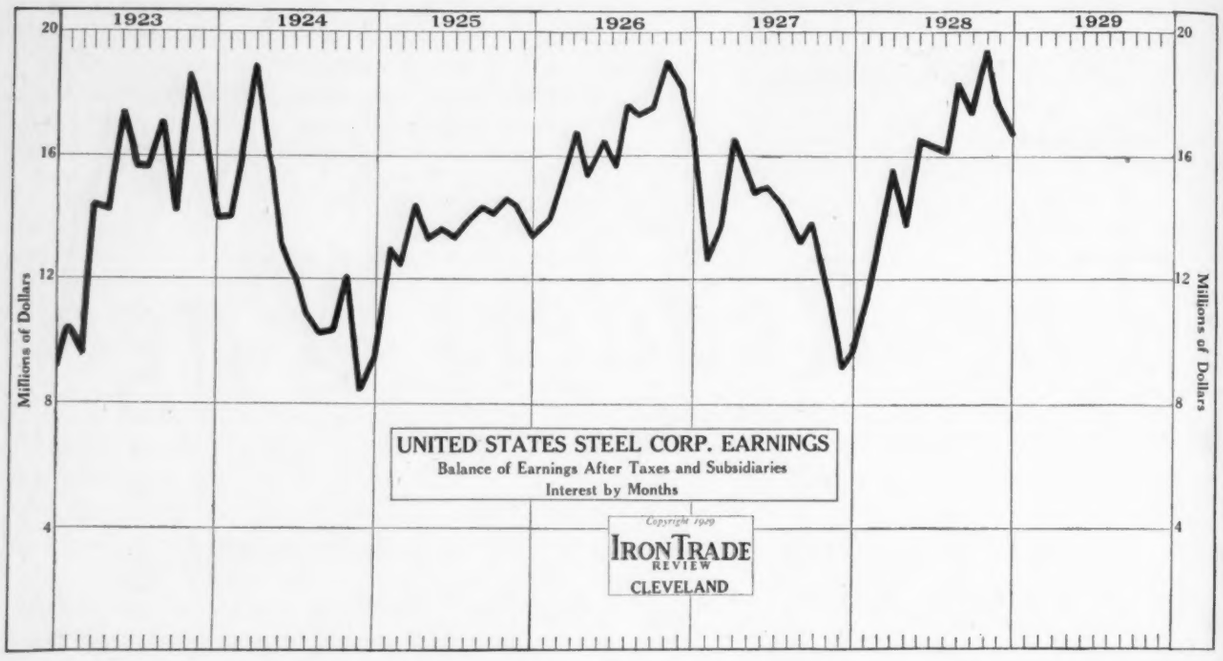
The Business Trend



Better Earnings Prevail For Steel Companies

By JOHN W. HILL, Financial Editor

NINETEEN twenty-eight brought a definite turn for the better in the earning power of leading iron and steel companies. This fact was clearly indicated by the quarter earnings figures reported during the year, and it has been further evidenced by the annual exhibit of many companies which now are available. The report of the United States Steel Corp. last week reflected the general tendency.

THE leading interest had an increase in profits, but the gain was not nearly so pronounced for it as it was for many of the independents. This is in accord with the traditional stability of the huge company. Nevertheless, even this tendency was somewhat shaken in the final quarter of the year, when earnings revealed an increase of nearly 130 per cent over those for the corresponding quarter of 1927.

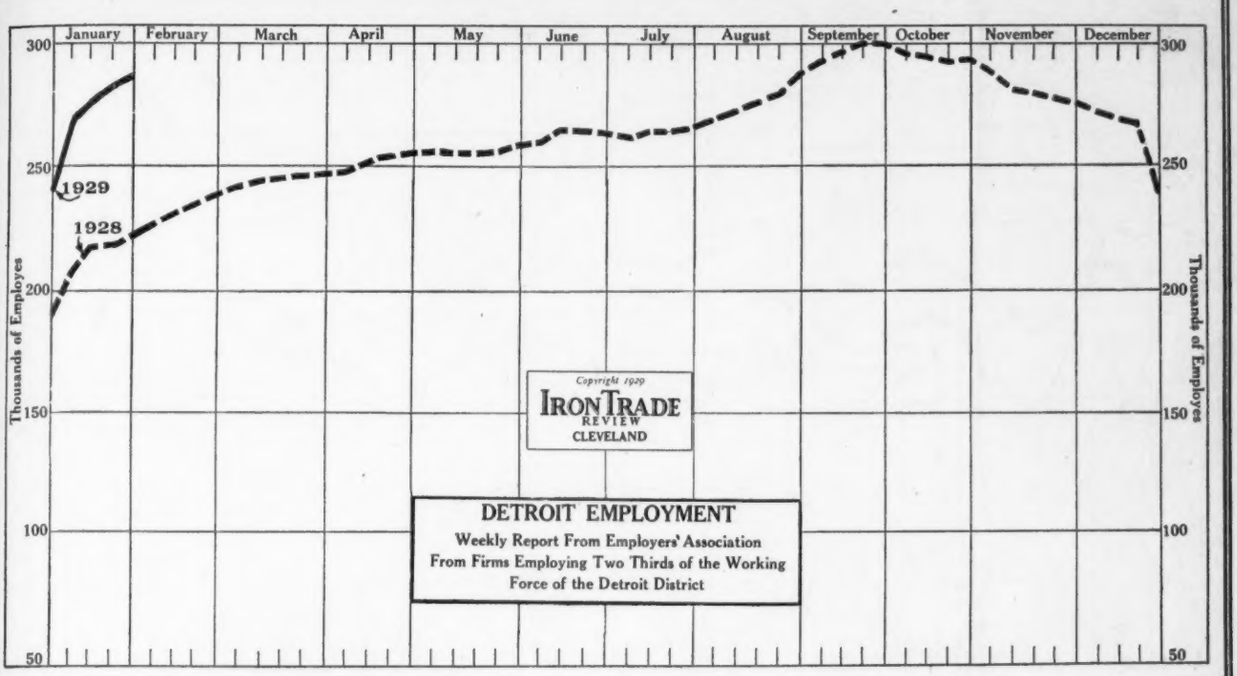
THE earnings of the corporation in the December period were the largest for any quarter of the year, while the October net was the largest for any peacetime month in the corporation's history. The balance of earnings for that month was $19,399,052 compared with $11,869,470 in October, 1927.

TRANSLATED into terms of earnings on common stock the 1928 results amounted to $11.61 per share, after all charges and preferred stock dividends. This compared with $8.81 a share in 1927. Before the annual report of the corporation was made public the stock market indulged in a speculative outburst, whirling the stock upward in a violent rise. This was in expectation of some sort of a melon, which was not forthcoming.

INSTEAD of a melon the directors of the corporation declared the usual dividend at the rate of $7 a share. The betterment in earnings for the United States Steel Corp. and for most independents in 1928 was the result of three factors, large operations, greater efficiency, and some improvement in prices.

THE improvement in prices was not sufficient to cause any sharp increase in earnings. Although a trifle better than at the low point of 1928, prices remain well below the levels of 1926. The real achievement in the iron and steel industry has been in the heightening of efficiency. This, together with satisfactory volumes, has helped to offset the price situation.

The Business Trend

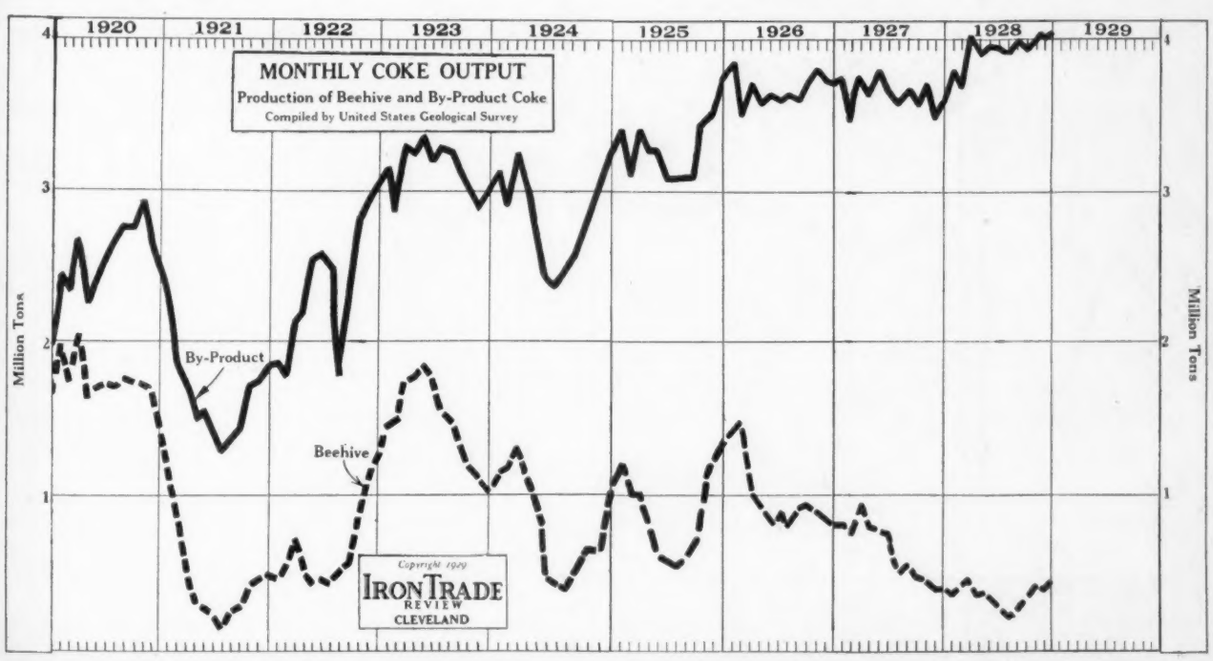


Detroit Employment

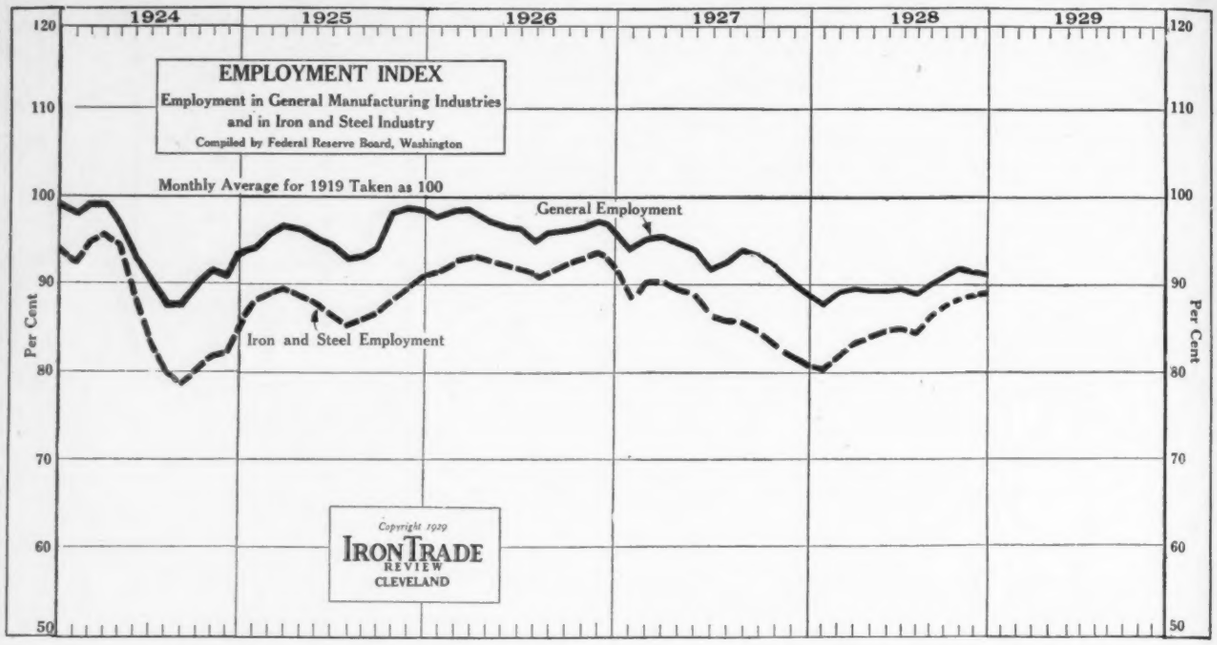
EMPLOYMENT in the Detroit district continues to gain. Total for the last week of January was 289,611, an increase of 3967 over the preceding week. According to the Detroit Employers association, employment for the closing week of the month was 66,000 greater than the total in the corresponding period one year ago. Pay rolls in the Detroit manufacturing district gained steadily during January and seem again to be approaching the record of around 300,000 reached last autumn.

Coke Output

TOTAL production of coke in 1928 amounted to 52,581,577 tons, an increase of 3 per cent over the production in 1927. The gain was caused by an increase in by-product coke output from 43,884,726 tons in 1927 to 48,205,577 tons in 1928. Beehive coke production declined from 7,207,417 tons in 1927 to 4,376,000 tons in 1928. The year marked a new high record for by-product coke. December was a record for coke production in a month with by-product output mounting to the highest level in history.



The Business Trend

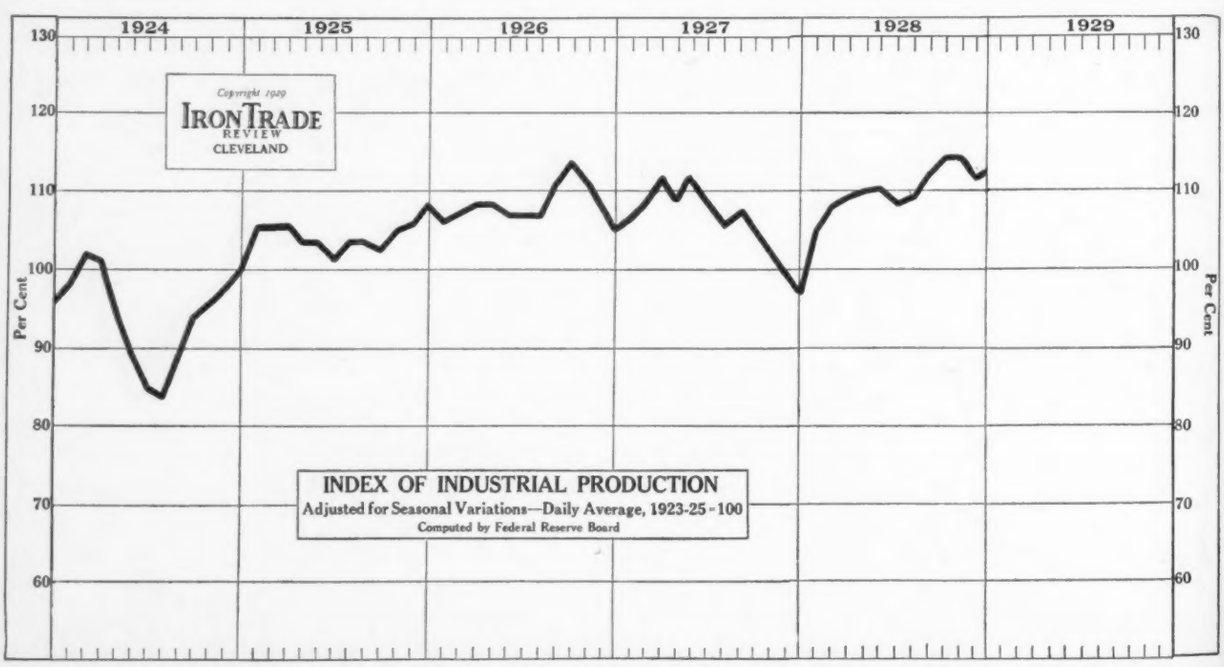


Employment Index

THE volume of factory employment and pay rolls was larger at the close of 1928 than is usual for that period of the year. The index of employment in factories throughout the country, as compiled by the Federal Reserve board, stood at 91.3 in December compared with 91.6 in November. Employment in iron and steel mills actually increased according to this index in December. The number stood at 89.4 for the month compared with 89.1 for the preceding month.

Industrial Production

INDUSTRIAL activity was maintained at a favorable rate during the closing months of 1928. The output of manufacturers decreased somewhat in December, but the decline was less than is usual during the month, and the production index computed by the Federal Reserve board was slightly higher than in November and above the level of one year ago. Smaller than usual seasonal reductions were reported in the output of steel, pig iron, automobiles, copper, cement, silks and flour.



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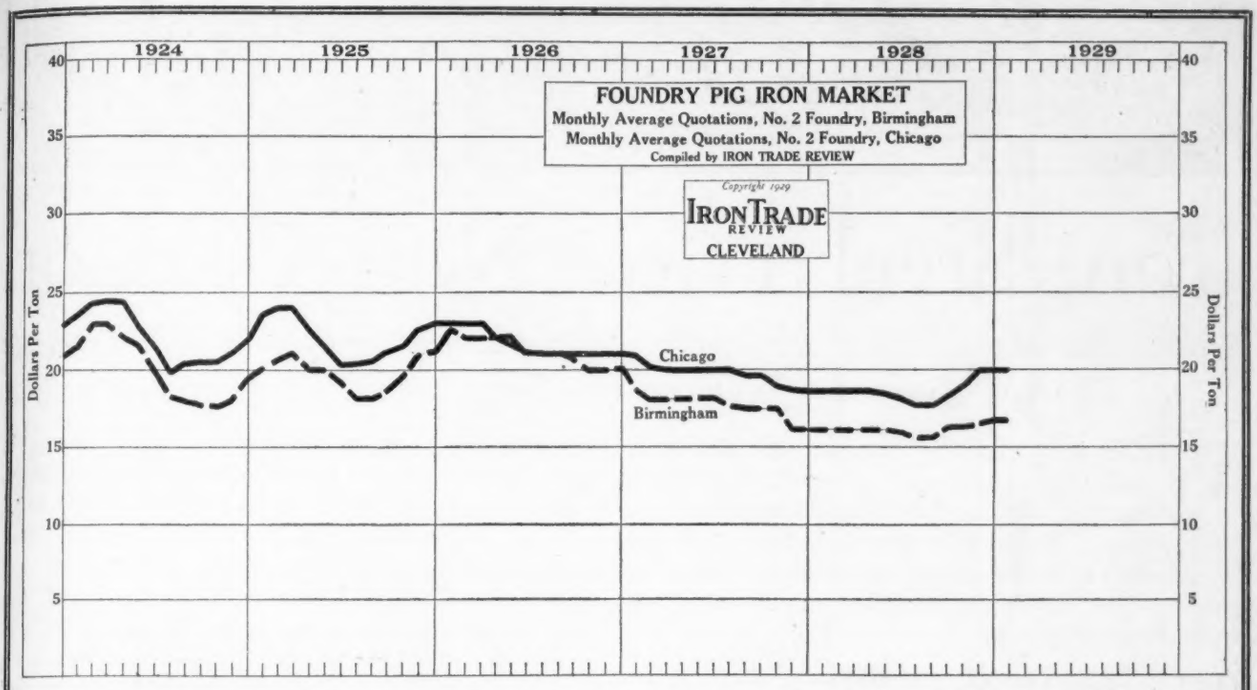
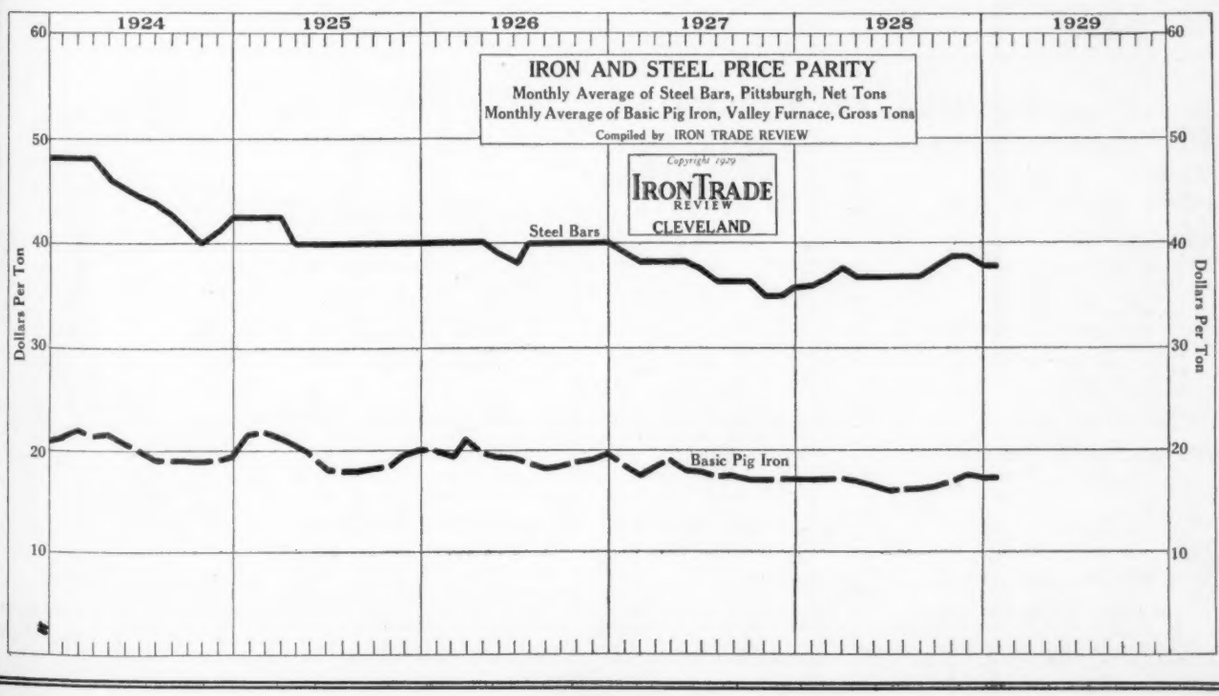


Foundry Pig Iron Market

AT THE beginning of 1929 both northern and southern foundry pig iron stands at the highest level since late in 1927. Both products are materially higher than one year ago. During the first month of the current year No. 2 foundry iron Chicago showed an average of $20 a ton. This compared with $18.50 a ton for January, 1928, and $20.90 a ton for January, 1927. No. 2 foundry Birmingham during January stood at an average of $16.50 a ton compared with $16 a ton in January, 1928, and $18.50 a ton in January, 1927.

Iron and Steel Price Parity

THE spread between finished steel and pig iron in January was greater than one year before. Standing at an average of $38 a ton, steel bars, Pittsburgh, compared with $17.50 a ton for basic valley pig iron during the first month of the present year. This was a spread of $21.50 a ton. One year ago price of bars was $36 and that of pig iron was $17, making a spread of $19 a ton. Bars have advanced $2 while pig iron has advanced only 50 cents a ton. Since the first of the year prices of iron and steel products have tended to hold their own.



Iron, Steel Prices Near Decision

Second-Quarter Levels Approach Determination—First Half Tonnage Believed Assured—January Pig Iron Production a Record

WITH iron and steel tonnage for the first half year apparently assured, prices are moving rapidly into the usual February test period. Expanding specifications and deferred deliveries are appraised by steel producers generally as fortifying the price structure, if not warranting advances.

Close Buyers Need Material Badly

Books on steel bars, plates, shapes and strip for the second quarter should be opened within the month. Consideration of prices thus far indicates a rise of $2 per ton. Last week's advance of $2 in cold strip points the way for hot strip. In some districts, pig iron producers have taken business through the first half, but a price remains to be fixed on the bulk of second quarter tonnage.

Delivery continues to take precedence over price for most consumers of bars, plates, sheets and strip, who include such proverbially-close buyers as freight car builders and automotive manufacturers. The break in scrap prices at Pittsburgh and Detroit, resulting more from overproduction than from underconsumption of scrap, is an indication of the heavy consumption of steel.

Increasingly is it apparent that iron and steel activity in January was at a record height. For most important producers of steel last month was the best peacetime January in history, and for some its specifications and bookings exceeded any month in over three years. February opens with no diminution of this pace. In fact, structural steel demand has lent strength to a situation dominated by the automobile and railroad industries.

As the third steelworks stack in as many weeks is lighted at Chicago, steelmaking there has risen to 92 per cent. Twenty-seven of the 36 steelworks stacks in that district are active; bar and plate mills are at capacity. Pittsburgh, where sheet, strip and tin plate mills are operating fully, has bettered last week's ingot rate of 85 per cent.

Operations Expand in All Districts

Buffalo, with 32 of its 37 open-hearth furnaces on, is at the highest rate of the year. Independent steelmakers in the Mahoning valley are at 92 per cent this week, against 90 a week ago; sheet

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	Feb. 6, 1929	Jan., 1929	Nov., 1928	Feb., 1928
PIG IRON				
Bessemer, del., Pittsburgh	$19.76	19.96	19.96	19.26
Basic, valley	17.50	17.50	17.70	17.00
Basic, eastern del., eastern Pa.	20.15	20.15	19.75	19.50
No. 2 foundry, del. Pittsburgh	19.26	19.36	19.56	19.01
No. 2 foundry, Chicago	20.00	20.00	20.00	18.50
*Southern No. 2, Birmingham	16.50	16.50	16.38	16.00
*Southern Ohio, No. 2 Ironton	18.50	18.50	18.25	19.00
**No. 2X, Virginia furnace	21.25	21.25	20.50	20.50
**No. 2X, eastern del. Phila.	22.26	22.26	21.51	20.91
Malleable valley	18.00	18.00	17.90	17.25
Malleable, Chicago	20.00	20.00	20.00	18.50
Lake Superior charcoal, del. Chicago	27.04	27.04	27.04	27.04
Gray forge, val., del. Pittsburgh	18.76	18.76	18.66	18.51
Ferromanganese, del. Pittsburgh	109.79	109.79	109.79	104.79
*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.				
COKE				
Connellsville, furnace, ovens	2.85	2.75	2.85	2.65
Connellsville, foundry, ovens	3.75	3.75	3.75	3.75
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngstown	34.00	34.00	33.60	34.00
Sheet bars, open-hearth, Pittsburgh	34.00	34.00	33.60	34.00
Billets, open-hearth, Pittsburgh	33.00	33.00	33.00	33.00
Wire rods, Pittsburgh	42.00	42.00	42.00	43.50

	Feb. 6, 1929	Jan., 1929	Nov., 1928	Feb., 1928
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.90	1.90	1.95	1.85
Steel bars, Chicago	2.00	2.00	2.00	1.95
Steel bars, Philadelphia	2.27	2.27	2.27	2.17
Iron bars, Chicago	2.00	2.00	2.00	1.95
Shapes, Pittsburgh	1.90	1.90	1.95	1.85
Shapes, Philadelphia	2.06	2.06	2.11	2.08
Shapes, Chicago	2.00	2.00	2.00	1.95
Tank plates, Pittsburgh	1.90	1.90	1.95	1.85
Tank plates, Philadelphia	2.10	2.10	2.15	2.10
Tank plates, Chicago	2.00	2.00	2.00	1.95
Sheets, black, No. 24, Pittsburgh	2.85	2.85	2.80	2.85
Sheets, blue anl., No. 10, Pittsburgh	2.10	2.10	2.05	2.10
Sheets, gal., No. 24, Pittsburgh	3.60	3.60	3.55	3.65
Sheets, black, No. 24, Chicago	3.00	3.00	3.00	3.05
Sheets, blue anl., No. 10, Chicago	2.25	2.25	2.15	2.25
Sheets, galvanized, No. 24, Chicago	3.75	3.75	3.65	3.90
Plain wire, Pittsburgh	2.50	2.50	2.40	2.45
Wire nails, Pittsburgh	2.65	2.65	2.55	2.60
Tin plate, per base box, Pittsburgh	5.35	5.35	5.30	5.25
SCRAP				
Heavy melting steel, Pittsburgh	18.75	19.00	17.35	15.05
Heavy melting steel, eastern Pa.	17.00	16.50	15.90	14.00
Heavy melting steel, Chicago	16.50	15.40	14.50	12.55
No. 1 wrought, eastern Pa.	16.25	15.50	15.50	15.25
No. 1 wrought, Chicago	15.75	14.75	14.25	12.40
Rails for rolling, Chicago	17.50	17.10	16.50	15.00

Current Prices for Rolled Steel Products

PRICES IN CENTS PER POUND UNLESS OTHERWISE INDICATED

STEEL PLATES

Pittsburgh, base	1.90c to 1.95c
Philadelphia, del.	2.10c to 2.20c
New York, del.	2.175c to 2.275c
Boston, del.	2.265c to 2.415c
Chicago, base	2.00c to 2.10c
Cleveland, delivered	2.09c to 2.14c
Lackawanna, N. Y., base	2.00c to 2.10c
Birmingham, base	2.05c to 2.15c
Coatesville, Pa., base	2.00c to 2.10c
Pacific Coast, c.i.f.	2.20c to 2.30c

STRUCTURAL SHAPES

Pittsburgh, base	1.90c to 1.95c
Philadelphia, del.	2.00c to 2.16c
New York, del.	2.145c to 2.195c
Boston, del.	2.265c to 2.415c
Chicago, base	2.00c to 2.10c
Cleveland, delivered	2.09c to 2.14c
Lackawanna, N. Y.	2.00c to 2.10c
Birmingham, base	2.05c to 2.15c
Bethlehem, Pa., base	2.00c to 2.10c
Pacific Coast, c.i.f.	2.35c

BARS

SOFT STEEL

Pittsburgh, base	1.90c to 1.95c
Chicago, base	2.00c to 2.10c
Birmingham, base	2.05c to 2.15c
Lackawana, N. Y., base	2.00c to 2.10c
Pacific Coast, c.i.f.	2.35c
Cleveland, base, local mills	1.90c
Cleveland, del., outside mills	1.95c
Philadelphia, del.	2.22c to 2.32c
New York, delivered	2.24c to 2.34c
Boston, delivered	2.265c to 2.415c
Pittsburgh, cold finishing	2.05c
Pittsburgh, forging quality	2.15c

RAIL STEEL

Chicago Heights	1.95c
Eastern mills	1.85c to 1.95c

IRON

Chicago, base	2.00c to 2.10c
New York, delivered	2.19c to 2.24c
Philadelphia, delivered	2.17c to 2.22c
Pittsburgh, refined	2.75c to 4.25c

REINFORCING

Pittsburgh, billet, cut lengths	2.25c
Stock lengths from mill	2.00c
Chicago, billet	2.35c to 2.60c
Chicago, rail steel	2.05c
Chicago, rail steel, road and bridge work	1.95c to 2.05c
Philadelphia, cut lengths	2.75c

COLD FINISHED STEEL

Cold finished steel bars, drawn or rolled, Pitts., chi., c.l.	2.20c
Shafting (turned, polished) Pittsburgh	2.20c
Shafting (turned, ground) mill (Depending on size, 1 3/16 to 7-inch)	2.55c to 3.00c
Cold finished steel bars, Cleve.	2.25c

TIN AND TERNE PLATE

Prices per 100-pound box Pittsburgh

*Tin plate, coke base	$5.35

Gary, Ind., base 10 cents higher.

Long ternes, primes, No. 24	4.00c to 4.10c

*Price subject to quantity differentials.

SHEETS

SHEET MILL BLACK

No. 24, Pittsburgh, base	2.85c
No. 24, Philadelphia, delivered	3.17c
No. 24, Gary, Indiana Harbor	2.95c
No. 24, Chicago, delivered	3.00c
No. 24, Birmingham, base	3.00c

TIN MILL BLACK

No. 28, Pittsburgh, base	3.00c
No. 28, Gary, base	3.10c

GALVANIZED

No. 24, Pittsburgh, base	3.60c
No. 24, Philadelphia, delivered	3.92c
No. 24, Gary, Indiana Harbor	3.70c
No. 24, Chicago, delivered	3.75c
No. 24, Birmingham, base	3.75c

BLUE ANNEALED

No. 10, Pittsburgh, base	2.10c
No. 24, Philadelphia, delivered	2.42c
No. 10, Gary, Indiana Harbor	2.20c
No. 10, Chicago, delivered	2.25c
No. 10, Birmingham, base	2.25c

AUTOMOBILE

No. 20, Pittsburgh, base	4.10c

FURNITURE

No. 24, Grade A, Pittsburgh	3.90c to 4.00c
No. 24, Grade B, Pittsburgh	3.75c to 3.85c

(Turn to the following page)

mill operations in the valley have been scaled down from 99 to 96 per cent this week owing to a scarcity of sheet bars. Operations of Steel corporation subsidiaries have increased another point this week, going to 88 per cent. With independents at 83 per cent, the average for the entire industry is 86 per cent.

January fulfilled expectations of being a record pig iron production month. With a daily rate of 110,736 tons, it exceeded the previous January record—in 1925—by 2 per cent. The spread over the 108,702 tons of December was about the same, but over the 92,113 tons of last January it was more than 20 per cent. Both in its daily rate and in its total—3,432,832 tons—January surpassed the best month of 1928. The six steelworks stacks dropped in January cancelled the six blown in, but the net gain in active merchant stacks was four. Consequently, 202 stacks of the 328 available were in blast Jan. 31.

Car Awards Far Exceed 1928 Rate

Freight car awards of the past week exceed 5000, including 2298 by the Rock Island, 2000 by the North Western and 350 by the Western Pacific but excluding 500 bodies for the Seaboard Air Line. Coupled with the 13,200 cars placed in January, actual car business in the opening six weeks of 1929 is 40 per cent of the entire 1928 total. Live inquiry for cars approximates 15,000. The Chicago & Eastern Illinois has bought 6000 tons of rails at Chicago. Nearly 7000 tons of fastenings was placed there last week. Even capacity operations of plate mills at Chicago scarcely suffice to meet requirements of carbuilders and the Milwaukee welded pipemaker. New inquiry includes 15,000 tons for Humble Oil & Refining Co. tanks in West Texas. River barge work pending at Pittsburgh totals 5100 tons, exclusive of 15,000 tons credited last week to the Federal Barge Line.

Sheet and Strip Deliveries Deferred

January shipments of sheets by Pittsburgh and Youngstown mills were the heaviest in history for that month, chiefly on account of automotive requirements. One maker of strip is asking six to seven weeks delivery on cold and four to five weeks on hot. Cold finished bar specifications are heavier from automotive users. Wire products demand is improving.

Weakness in scrap, initiated at Pittsburgh and followed closely at Detroit, has had a sobering influence on other markets. Realization that practically a record tonnage is coming out of automotive plants precipitated the break at Detroit. Some dealers look upon the past week's adjustment as a turn from abnormal to normal conditions. Of the other raw materials, beehive coke is stronger, responding to heavier demand. Semi-finished steel is scarce, but unchanged in price.

Composite Market Average

Based on Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets Tin Plate, Wire Nails and Black Pipe

This week (Feb. 6, 1929)	$36.25
Last week (Jan. 30, 1929)	$36.25
One month ago (January, 1929)	36.24
Three months ago (November, 1928)	36.02
One year ago (February, 1928)	35.62
Ten years ago (February, 1919)	53.71
Fifteen years ago (February, 1914)	23.52

For the third consecutive week the IRON TRADE REVIEW composite of fourteen leading iron and steel products is unchanged at $36.25. A month ago this index stood at $36.24, a year ago it was $35.62, and ten years ago $53.71.

Current Rolled Steel Prices

PRICES IN CENTS PER POUND UNLESS OTHERWISE INDICATED
SEE ALSO PRECEDING PAGE

HOOPS, BANDS, STRIPS

Hot strip, to 6-in., Pitts.	1.90c to 2.00c
Hot strip, 6 1/16 to 24-in., Pitts.	1.80c to 1.90c
Hot rolled strip, 12 to 24-inch 16 gage and heavier, coils or cut length, plate basis, or 2.10c blue annealed basis.	1.90c to 2.00c
Hot strip, bands 6 in. and under, Chicago	2.10c to 2.30c
Do, 6⅛ to 24 in.	2.00c to 2.10c
Cold rolled strip, hard coils, 16 inches and under by 0.100-inch and heavier, base Pitts., Cleve. (3 tons and over)	2.85c to 2.95c
Worcester, Mass (3 tons and over)	3.10c to 3.20c

ALLOY STEEL

Hot Rolled
F.o.b. Mills

Alloy Quality Bar Base is 2.65c to 2.75c

S.A.E. Series Number	Alloy differential	Net, 100 lb. bars
2000	0.25	$3.00
2100	0.55	3.30
2300	1.50	4.25
2500	2.25	5.00
3100	0.55	3.30
3200	1.35	4.10
3300	3.80	6.55
3400	3.20	5.95
4100 0.15-0.25 Mo.	0.50	3.25
4100 0.25-0.40 Mo.	0.70	3.45
4600 0.20-0.30 Mo. 1.25-1.75 Ni.	1.05	3.80
5100 0.60-0.90 Cr.	0.35	3.10
5100 0.80-1.10 Cr.	0.45	3.20
5100 Chrome Spring	0.20	2.95
6100 Bars	1.20	3.95
6100 Spring Steel	0.95	3.70
Chrome Nickel Vanadium	1.50	4.25
Carbon Vanadium	0.95	3.70
9250 (flats)	0.25	3.00
9250 (rounds, squares)	0.50	3.25

TUBING

Boiler

Carload Discounts—F.o.b. Pittsburgh Mills

Steel 3¼ to 3¾-inch	56
Charcoal iron, 3¼ to 3½-inch	18
Seamless hot rolled 3¼ to 3½-inch	56

Lapwelded steel takes two supplementary 5 per cents for carload lots; charcoal, 10 per cent; seamless, 5 per cent.

Note: Discounts for additional sizes and less-than-carload shipments shown in Discounts and Extras table in back of book.

COLD DRAWN SEAMLESS

F.o.b. mill in desirable quantities

Random lengths, over 5 feet	55 per cent
Selected lengths, 1 to 18 feet	53 per cent

WIRE PRODUCTS

F.o.b. Pittsburgh, Cleveland, Ironton base
(Per pound)

	Dealer trade	Large jobbers
Bright plain wire, 6 to 9 gage	2.60c	2.50c
Annealed field wire	2.75c	2.65c
Galvanized wire	3.20c	3.10c
Barbed wire, galvanized	3.40c	3.30c
(Per 100-pound keg)		
Wire nails	$2.75	$2.65
Galvanized nails	4.75	4.65
Polished staples	3.20	3.10
Galvanized staples	3.45	3.35
Cement coated nails	2.75	2.65

Joliet, DeKalb and Waukegan, Ill., Anderson, Ind., and Chicago prices $1 per ton over Pittsburgh-Cleveland-Ironton base on products made there; Duluth $2 higher, Worcester, Mass., and Fairfield, Ala., $3 higher.

Woven wire fencing, retailers, Pittsburgh-Cleveland, net ton $65.

Anderson, Ind., $1 higher, Chicago $2 higher, and Duluth and Birmingham $3 higher.

CUT NAILS, CHAIN, PILING

Cut nails c.l., f.o.b. mills	2.75c
Cut nails, l.c.l. f.o.b. mills	2.85c
Chain, 1-in., proof coil, Pitts.	6.00c
Sheet piling base, Pittsburgh	2.25c

CAST IRON WATER PIPE

Prices per net ton
Class B pipe

Six-inch and over, Birming'm	$37.00 to 38.00
Four-inch, Birmingham	41.00 to 42.00
Four-inch, Chicago	49.20 to 50.20
Six-inch to 24-inch, Chicago	45.20 to 46.20
Four-inch, New York	42.80 to 44.80
Six-inch and over, New York	39.80 to 41.80
Standard fittings, Bir. base	$100.00

Six to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $10; 3-inch, plus $20; gas pipe fittings, $5 higher.

Class A pipe is $4 higher than Class B.

IRON AND STEEL PIPE

Base Discounts Pittsburgh and Lorain, O., to Jobbers in Carloads

	Black	Galv.
1 to 3-inch butt steel*	62	50*
1 to 1½-inch butt iron	30	13

Indiana Harbor, Ind., and Evanston, Ill., 2 points less, Chicago, del., 2½ points less.

*To large jobbers these discounts are increased on black by 1 point and a supplementary discount of 5 per cent on galvanized by 1½ points with a supplementary 5 per cent.

RAILS, TRACK MATERIAL

Standard bessemer rails, mills	$43.00
Standard open-h'th rails, mill	$43.00
Relaying rails, St. Louis	$24.00 to 31.00
Relay rails, Pitts. 60 to 90 lb.	$22.00 to 27.00
Light rails, 25 to 45, mills	$36.00
Angle bars, Chicago base	2.75c
Spikes, railroad, Pittsburgh	2.80c
Spikes, small railroad, 7/16-inch and smaller, Pitts.	2.80c
Spikes, boat and barge, Pitts.	3.00c
Spikes, railroad, Chicago	2.80c
Track bolts, Pitts., steam roads	3.80c
Track bolts, Pitts., stand, jobbers	70 off list
Track bolts, Chicago	3.80c
Tie plates, Chicago, Pitts.	$43.00

BOLTS AND NUTS

Birmingham and Chicago

Discounts are for legitimate jobbing or large consuming trade purchasing in full-case lots, apply to lists of April 1, 1927.

Small lots are 55 to 60 per cent off.

CARRIAGE BOLTS

All sizes, cut thread	60 to 70 off

Rolled thread ⅝ x 6 and smaller take 10 per cent lower list.

Eagle list	60 to 70 off

MACHINE BOLTS

All sizes, cut thread	60 to 70 off

Rolled thread ¾ x 6 and smaller take 10 per cent lower list.

Lag screws	60 to 70 off
Plow bolts, Nos. 1-2-3-7 heads	60 to 70 off
Tap bolts	60 to 70 off
Blank bolts	60 to 70 off
Stud bolts without nuts	60 to 70 off

Stove bolts, 75, 20, 10 and 5 off in pkgs., 75, 20, 10 and 5 with 2½ off in bulk.

Tire bolts	60-5 off
Nuts	
Semifinished	60 to 70 off

HEXAGON CAP SCREWS

Milled	80-10-5 off
Upset 1 in. diam. and smaller	85 off

SQUARE HEAD SET SCREWS

Milled	80-5 off
Upset 1 in. diam. and smaller	80-10-5 off

RIVETS

Struc. c.l., Pitts.-Cleve.	2.90c to 3.10c
Structural, c.l., Chicago	3.00c to 3.20c
**7/16-inch and smaller, Pitts.	70 and 10 off
Chi., Cleve.	70 to 70 and 10 off

**Some makers quoting 70 off with freight allowed on 300 pounds or more.

WASHERS

Wrought, c.l., Pitts. dist.	$6.50 to 6.75 off
Wrought, c.l., Chicago dist.	$6.70 to 6.90 off
Lock: to dealers	85-5 off
Lock: to consumers	85 off

Raw Materials and Semifinished Products

SEMIFINISHED MATERIAL

Prices Per Gross Ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$33.00
Pittsburgh, bessemer	33.00
Youngstown	33.00
Cleveland	34.00
Philadelphia	38.30
Chicago	35.00
Forging, Chicago	40.00
Forging, Pittsburgh	38.00
Forging, Philadelphia	43.30

SHEET BARS

Pittsburgh	$34.00
Youngstown	34.00
Cleveland	34.00
Chicago	35.00

SLABS

Pitts., Young., and Cleve.	$33.00

WIRE RODS

Pittsburgh, Cleveland	$42.00
Chicago	43.00

SKELP

All grades, Pittsburgh	1.85c to 1.90c

IRON ORE

LAKE SUPERIOR ORE

Per Gross Ton, Lower Lake Ports

Old range bessemer, 51½%	$4.55
Mesabi bessemer, 51½%	4.40
Old range nonbessemer 51½%	4.25
Mesabi nonbessemer, 51½%	4.25

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic, 56-63%	8.00
Copper free low phosphorus 58 to 65 per cent	nominal

FOREIGN ORE

Cents per unit, alongside docks, Atlantic ports

Foreign manganiferous ore, 45-55% iron, 6-8% manganese	10.50 to 11.00
North African low phosphorus	10.00 to 11.00
Swedish foundry or basic, 65%	9.00 to 9.50
Spanish and North African basic, 50 to 60 per cent	nominal
Newfoundland foundry, 55%	8.50

MANGANESE ORE

Prices do not include duty of 1 cent per pound of metallic manganese contained.

Brazilian	35 cents
Indian	35 to 36 cents
Caucasian, (53-55 per cent	36 to 38 cents

FLUORSPAR

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton	$18.00
Washed gravel, imported duty paid, east, tidewater, gross ton	$19.40 to 20.40

REFRACTORIES

FIRE CLAY BRICK

Per 1000 f.o.b. works

First Quality

Pennsylvania	$43.00 to 46.00
Ohio	43.00 to 46.00
Illinois	43.00 to 46.00
Kentucky	43.00 to 46.00
Missouri	43.00 to 46.00
Maryland	43.00 to 46.00
Georgia and Alabama	40.00 to 45.00

Second Quality

Pennsylvania	35.00 to 38.00
Ohio	35.00 to 38.00
Illinois	35.00 to 38.00
Kentucky	35.00 to 38.00
Missouri	35.00 to 38.00
Maryland	35.00 to 38.00
Georgia and Alabama	30.00 to 35.00

SILICA BRICK

Pennsylvania	43.00
Joliet, Ill., East Chicago, Ind.	52.00
Birmingham	50.00 to 51.00

MAGNESITE BRICK

Per Net Ton

9 x 4½ x 2½	65.00

MAGNESITE

Net Ton Chester, Pa., and Baltimore base

Dead-burned grain magnesite	40.00

CHROME BRICK

Net Ton Chester, Pa., and Baltimore base

9 x 4½ x 2½	45.00

Pig Iron

Shipments Better Than January Rate—Outlook Is Promising—Michigan Foundry Inquiring for 30,000 Tons of Boat Iron

PIG iron shipments are being made at a rate exceeding the January average, leading producers report. Tonnage moving to the automotive industry is much heavier, and information from that source indicates it will continue to be an important consumer through first and second quarter. Current inquiries and sales are light, owing to the fact melters generally are covered for first quarter. Not much change is expected to develop in the market until about March 1. The majority of furnace interests have been booking second quarter orders at first quarter prices. A few of them, with large order books for first quarter and prospects they will have to carry considerable tonnage over into second quarter are asking 50 cents more. A Muskegon, Mich., melter seeks 30,000 tons.

PITTSBURGH, Feb. 5.—Contract shipments of pig iron are holding up well. Although new orders generally consist of one or two carloads there is a fairly steady run of such business. Large inquiries are lacking. The Richmond Radiator Co.'s inquiry for 5000 tons for its Uniontown, Pa., plant still is pending. Another radiator company with plants in Johnstown and New Castle, Pa., is in the market for an unstated tonnage for second quarter. Basic iron is quiet, although small tonnages placed a short time ago substantiate the quotation of $17.50, valley. Sales of foundry iron generally command $17.50, valley, for No. 2 plain and $18 for No. 2X. Some reports are heard of shading of $17.50, but are not generally credited. Orders for bessemer iron are small, and $118.25, valley, is the representative price. Malleable holds at $18, valley.

The average sales price of bessemer iron in January was $18.25, and for basic $17.50, the same as in December, according to W. P. Snyder & Co.'s compilation.

Boston, Feb. 5.—Pig iron sales in the past week totaled 5000 tons, distributed between the Mystic Iron works, Buffalo and New York state furnaces. Practically all of the iron is for delivery in second quarter. An inquiry for 1200 tons of No. 1X and No. 2X iron comes from a Providence, R. I., melter. Prices are steady.

New York, Feb. 5.—Consumption of pig iron continues brisk. Producers report numerous urgent requests for shipments on contracts. Many melters have used iron more rapidly than they expected. New buying during the past week has been of fair proportions, aggregating 6000 to 7000 tons, mainly for early shipment. Prices are firm, at $17.50 to $18, base, Buffalo, or equivalents. This range is equivalent to $20.78 to $22.91, delivered in this general teritory, depending on the freight rate. Some interest is displayed in canal rates for the coming season, but so far no iron prices have been named for water shipment. Richmond Radiator Co. has not taken action against its recent inquiry for a large tonnage for Uniontown, Pa.

Buffalo, Feb. 5.—Small lot sales of pig iron are improving. The Toronto consumer who was reported in the market for 3000 to 5000 tons will buy considerably more than the latter figure, it is understood here. Buffalo furnaces hope to get a portion of the business. Eastern furnaces are offering less competition, and Buffalo producers say they no longer have to shade $18 to book tonnage in that territory.

Detroit, Feb. 5.—A heavy movement of pig iron is noted to jobbing foundries and other casting makers. Tonnages on books are being increased, and releases are large each week. Cylinder block foundries sharing in the recent Ford Motor Co. order for 400 cylinder blocks daily for the old model T car are augmenting their malleable commitments. Some buyers are covered for second quarter, having purchased their first half needs. Others protected only for first quarter are about to reserve second quarter tonnage. The present price is $20, base, furnace.

Chicago, Feb. 5.—With more inquiries appearing for second quarter, it is evident a number of buyers feel assured as to the stability of the pig iron market. The strength in the scrap market has had little direct influence in the pig iron market except to increase demand for higher silicon grades. Undoubtedly the continued strength in scrap is causing melters to consider closely their pig iron needs for second half. The base price for foundry and malleable grades is steady at $20, Chicago furnace.

The Lakey Foundry & Machine Co., Muskegon, Mich., is inquiring for 30,000 tons of iron for shipment by boat at opening of lake navigation. About 1000 tons of basic iron also is on inquiry.

Cincinnati, Feb. 5.—Buyers are displaying little interest in pig iron for second quarter. A purchase of 2000 tons of northern foundry is expected to be made by the Marmon Motor Car Co., Indianapolis. The trade believes this transaction will test prices here.

St. Louis, Feb. 5.—While falling slightly below the December aggregate, shipments of pig iron in this district in January were heavier than in the same month in 1928, and well above the January average during the past five years. Users continue to specify liberally and the average daily rate this month is likely to pass that of January. A feature in the buying situation is the quiet covering by numerous melters for second quarter. Sales reported in the past several days total approximately 5000 tons, all foundry and malleable grades. The largest single sale was 1000 tons of foundry iron to a local jobbing plant. A Quincy, Ill., jobbing foundry took 500 tons. Prices are strong.

Birmingham, Ala., Feb. 5.—Pig iron production is steady. One company reports shipments a little bet-

(*Concluded on Page* 414)

Pig Iron Prices

Per Gross Ton

Bessemer, valley furnace	$18.00 to 18.25
Bessemer, del. Pittsburgh	19.76 to 20.01
Basic, valley furnace	17.50
Basic, del. Pittsburgh	19.26
Basic, Buffalo furnace	17.50
Basic, del. eastern Pa.	20.15 to 20.76
Malleable, valley furnace	18.00
Malleable, del. Pittsburgh	19.76
Malleable, Cleve. furn. for local del.	19.00
Malleable, Chicago furnace	20.00
Malleable, Buffalo furnace	19.00
Malleable, del. eastern Pa.	21.76 to 22.26
Malleable, Granite City fur.	20.50
No. 1 foundry, Chicago furnace	20.50
No. 1X, eastern del., Phila.	22.76
No. 1X, Buffalo furnace	20.00
No. 2 foundry, del. Pittsburgh	19.26
No. 2 foundry, valley furnace	17.50
No. 2 plain, Buffalo furnace	18.50
No. 2 foundry, Chicago furnace	20.00
No. 2 foundry, Granite City	20.00
No. 2 foundry, Ironton furnace	18.50
No. 2 fdy. Cleve. furn. for local del.	19.00
No. 2 plain, del. Phila.	21.76
No. 2 plain, Virginia furnace	20.75
No. 2 plain, Buffalo, del. Boston	22.41 to 22.91
No. 2 plain, N. J., tidewater	20.78 to 21.28
No. 2 Alabama, Birmingham	16.50 to 17.00
No. 2 Alabama, del. Cincinnati	20.19 to 20.69
No. 2 Tenn., Birmingham base	16.50
No. 2 Tenn., del. Cincinnati	20.19
No. 2 Alabama, del. Chicago	22.51 to 23.01
No. 2 Alabama, del. Cleveland	22.76 to 23.26
No. 2 Alabama, del. St. Louis	21.42
No. 2X, east, N. J., tidewater	21.28 to 21.78
No. 2X, eastern, del. Phila.	22.26
No. 2X, foundry, Buffalo furnace	19.00
No. 2X, Buffalo, del. Boston	22.91 to 23.41
No. 2X, Virginia furnace	21.25
Gray forge, val., del. Pittsburgh	18.76 to 19.26
Low phos., standard, valley	27.00
Low phos., standard, Phila.	24.26 to 24.76
Low phos., copper bearing fur.	23.00 to 23.50
Charcoal, Superior, del., Chicago	27.04

CANADIAN PRICES

No. 2 foundry, del. Toronto	23.60
No. 2 foundry, del. Montreal	25.00
Malleable, del. Toronto	23.60
Malleable, del. Montreal	25.00
Basic, del. Montreal	24.00

Silvery iron, Jackson county, O., furnaces, in per cents: 5—$23 to $24; 7—$25 to $26; 8—$26 to $27; 9—$27 to $28; 10—$29 to $30; 11—$31 to $32; 12—$33 to $34; 13—$35 to $36.

Bessemer ferrosilicon, Jackson county, O., furnaces, in per cents: 10—$31 to $32; 11—$33 to $34; 12—$35 to $36; 13—$37 to $38; 15—$41.50 to $42.50; 16—$43 to $44.

Coke

Beehive Furnace Fuel Higher—Foundry and Domestic Shipments Heavy

BEEHIVE furnace coke prices are higher, $2.75 having generally disappeared, and $2.85 to $2.90 now prevailing. Two steelworks interests purchased a total of 36,000 tons for February and March shipment. Production has been held down to contract requirements, and some oven interests continue to buy coke to fill requirements. Demand for foundry coke is brisk.

Pittsburgh, Feb. 5.—The beehive furnace coke market is stronger, following the placing of substantial tonnages by two steelworks. One in the Youngstown district contracted for 6000 tons monthly for February and March. A West Virginia consumer placed 12,000 tons monthly for the same period. The prices paid are understood to be $2.75 to $2.85. Producers have been slow to light additional ovens at previously prevailing prices, restricting the supply of surplus fuel.

The former price of $2.75 has practically disappeared, and asking prices now are as high as $3. Foundry coke demand is steady, and prices are holding at $3.75 to $4.85. Demand for heating coke is more active. Supplies are limited and prices are firm, with $2.50 minimum.

Production of coke in the Connellsville region for the week ended Jan. 26 was 63,850 tons, compared with 62,970 tons the preceding week, according to the *Connellsville Courier*.

Boston, Feb. 5.—New England Coal & Coke Co. sold more domestic coke in January than in any previous January in the company's history. There is no change in prices for February, the foundry grade holding at $11, delivered within a $3.10 freight zone from Boston. A better movement of foundry coke is noted.

New York, Feb. 5.—Foundry coke consumption continues heavy. New buying is small, being covered by contracts. Beehive foundry coke continues $4.85, Latrobe, Pa., and $3.75 to $4.25, Connellsville. By-product foundry coke continues $11, delivered at most New England consuming points, and $9 to $9.40, delivered at Newark, N. J.

Detroit, Feb. 5.—By-product foundry coke has been in such heavy demand a real shortage exists. Some beehive in small quantities has been brought in to help out. The price still is $8, ovens.

Cincinnati, Feb. 5.—The shortage in domestic by-product coke for spot shipment is acute. Surplus stocks among dealers are low. Dealers are finding a ready market for present output in the Detroit district. Specifications for by-product coke have been good, especially in the automobile industry. No change is expected during February in coke prices.

Chicago, Feb. 5.—By-product foundry coke is steady at $8, ovens, and $8.75 for local delivery. One producer's shipments in January made a record for all grades, and was among the highest on record for foundry consumers.

Coke Prices

Prices per Net Ton

Beehive Ovens	
Connellsville furnace	$2.85 to 2.90
Connellsville foundry	3.75 to 4.85
New River foundry	6.00 to 6.50
Wise county foundry	4.50 to 5.25
Wise county furnace	3.50 to 4.25
By-Product Foundry	
Newark, N. J., del.	9.00 to 9.40
Chicago, ovens	8.00
New England, del.	11.00
St. Louis, del.	9.00
Birmingham	5.00
Indianapolis, del.	8.25
Ashland, Ky.	7.00
Portsmouth, O.	7.00
Detroit, ovens	8.50
Buffalo, ovens	8.75

Ferroalloys

Spiegeleisen Supplies Easier—Ferroalloy Shipments Heavy

New York, Feb. 5.—Tightness in supplies of spiegeleisen noted for some weeks is being relieved to a slight extent. Consumers who had been told they could have only the minimum amount due them this month are being advised they can have a little more tonnage. The domestic price continues $34 for 19 to 21 per cent, subject to differentials on large quantities. English spiegeleisen continues $35, duty paid, tidewater, with higher prices for metal having a higher manganese content. Ferromanganese shipments continue heavy. Consumers generally are under contract at $105, duty paid, tidewater.

Pittsburgh, Feb. 5.—Ferromanganese and spiegeleisen shipments are maintained at a high seasonal rate. January tonnage approached the record for that period. Supplies of spiegeleisen are not plentiful, but the New Jersey Zinc Co. expects to place its second furnace at Palmerton, Pa., in operation by the end of the month.

Pig Iron

(*Concluded from Page* 413)

ter than its output. The price continues $16.50 to $17, base, Birmingham. Encouraging reports are received from melters who are increasing their output in anticipation of heavy shipments the latter part of this month and through the summer. Another blast furnace is scheduled to resume operations this month. Ten furnaces in Alabama are making foundry iron, eight basic and one a special brand of iron.

The Republic Iron & Steel Co. will blow in No. 2 blast furnace Feb. 11, giving it two in blast. The Tennessee Coal, Iron & Railroad Co. has two blast furnaces banked until its surplus is reduced.

Philadelphia, Feb. 5.—Consumers continue active in requests for shipments of pig iron on contracts and in many instances they are placing supplemental tonnages because their requirements are proving larger than expected. New sales, however, are restricted to small and moderate size lots. Prices are steady.

Cleveland, Feb. 5.—So far the $17.50, base, valley, price on foundry iron has not affected the local situation, as furnace interests here claim to be obtaining $19, base, furnace, for delivery in the 60-cent switching area. Valley iron at $17.50 could be delivered here at plus $1.76 for freight, or $19.26. However, Cleveland district melters are covered, and only a few carloads appear on new inquiries. Cleveland furnaces also are booked heavily for first and second quarter. For shipment in outside competitive territory $18.50, base, furnace, has been the prevailing price for first and second quarter delivery. One Cleveland producer, however, is unable to take any more business for first quarter, and is so well booked for second quarter that it is quoting $19, base, furnace, for outside shipment. Demand in Detroit automotive district is active. Sales by furnace interests with headquarters in Cleveland totaled 24,300 tons in the past week, another slight improvement over the week preceding.

Toronto, Ont., Feb. 5.—Demand for merchant pig iron continues to expand. Spot buying is strongly featured. Shipments are large. Prices are unchanged.

Ferroalloy Prices

(In dollars, except ferrochrome)

Ferromanganese, 78 to 82 per cent tidewater duty paid	$105.00
Ferromanganese, del. Pittsburgh	109.79
Spiegeleisen, 19 to 21 per cent domestic furnace, spot†	34.00
*Ferrosilicon, 50 per cent, freight allowed, carloads	88.50
*Do., less carload	88.50
Do., 75 per cent	130.00 to 150.00
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. per lb. con., del.	11.00
Do., for spot delivery	11.50
Ferrotungsten, stand., lb. cont.	1.04 to 1.10
Ferrovanadium, 30-40 per cent, per lb., contained, on analysis	3.15 to 3.65
Ferro-carbon-titanium carload, producer's plant, net ton	160.00
Do, one ton to carload	170.00
Ferrophosphorus, per ton, carload, 17 to 19 per cent, Rockdale, Tenn., basis (18 per cent)	91.00
Ferrophosphorus, electrolytic, per ton, carload, 23-25% f.o.b. Anniston, Ala. (24 per cent)	122.50

†Quantity diff. apply on 100 tons and over.
*These prices contract, spot $5 higher.

Scrap

Easier Market in East not Apparent in West—Generally Lower Prices Rule

UNUSUAL outpouring of scrap material, especially at Detroit, has unsettled the market in the East, although some heavy tonnages have been bought there by consumers, as a partial balance. The Chicago and St. Louis markets apparently have not been affected beyond a lessened tendency to advance.

Chicago, Feb. 5.—Strength in the iron and steel scrap market continues unabated, but it is evident that prices show more stability at present levels. Indications that the market is settling to its own level after several weeks of pyramiding prices is evident in lessened dealer buying at high quotations. Dealers are even giving some attention to selling in several grades, particularly those that have moved out of line in the general upward swing. Rail ends, particularly 2-foot and under, are at a premium, dealers finding it difficult to buy under $20.75. No. 1 cast on the Chicago & North Western list closed at $15.75, net delivered. No. 2 wrought has been bought at above $16.25, gross delivered, and is being accepted as heavy melting steel. Melting steel remains at $16.50. Weakness in the Detroit and Pittsburgh markets had no apparent effect in this district.

Boston, Feb. 5.—Forge scrap had the best demand during the past week, and as a result there was a slightly firmer price for this line. Pittsburgh mills ceased buying temporarily and this halted activity decidedly. A boat for Danzig loaded 1800 tons

Iron and Steel Scrap Prices

Corrected to Tuesday noon. Gross tons delivered to consumers, except Detroit where dealers' buying prices are shown

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	$11.50 to 12.50
Boston, dealers	12.25 to 12.75
Boston, No. 2	10.00 to 10.50
Buffalo, No. 1	17.50 to 18.00
Buffalo, No. 2	14.50 to 14.75
Chicago	16.50
Cincinnati, deal.	14.00 to 14.50
Cleveland, No. 1	15.50 to 16.00
Cleveland, No. 2	15.00 to 15.50
Detroit, No. 1	14.75 to 15.25
Detroit, No. 2	12.00 to 12.50
East Pa., del. mill	16.00 to 17.00
Eastern Pa. No. 2	13.00 to 13.50
N. Y., deal., R. R.	12.50 to 13.00
N. Y., deal., yd.	9.50 to 10.50
Pittsburgh, No. 1	18.50 to 19.00
St. Louis, No. 1	14.00 to 14.50
St. Louis, No. 2	13.00 to 13.50
Valleys, No. 1	18.00 to 18.50

COMPRESSED SHEETS

Buffalo	15.75 to 16.25
Chicago	14.50 to 15.50
Cleveland	15.00 to 15.50
Detroit	15.00 to 15.50
E. Pa. new mat.	13.00 to 13.50
Pittsburgh	18.50 to 19.00
Valleys	18.00 to 18.50

BUNDLED SHEETS

Buffalo	12.50 to 13.00
Cincinnati, deal.	11.00 to 11.50
Cleveland	13.00 to 13.50
Eastern Pa.	11.00 to 11.50
Pittsburgh	17.00 to 17.50
St. Louis	10.00 to 10.50

SHEET CLIPPINGS LOOSE

Chicago	8.50 to 9.00
Cincinnati	10.25 to 10.75
Detroit	9.75 to 10.25
St. Louis	10.00

STEEL RAILS, SHORT

Birmingham	12.00 to 13.00
Boston	11.75 to 12.75
Buffalo	18.50 to 19.00
Chicago, (3 feet)	19.50 to 20.00
Chicago, 2 ft. and under	20.25 to 20.75
Cincinnati, deal.	19.00 to 19.50
Detroit	17.00 to 17.50
Pittsburgh	20.00 to 20.50
St. Louis	17.00 to 17.50

STOVE PLATE

Birmingham	13.00 to 13.50
Boston consumers	11.00 to 11.50
Buffalo	14.50
Chicago, net	12.75 to 13.25
Cinn., deal., net	10.50 to 11.00
Detroit, net	9.50 to 10.00
Eastern Pa.	12.50 to 13.00
N. Y., deal., mill	9.25 to 9.50
Pittsburgh	12.00 to 12.50
St. Louis	13.50 to 14.00

ANGLE BARS—STEEL

Chicago	17.00 to 17.50
St. Louis	15.00 to 15.50

COUPLERS, SPRINGS

Buffalo	18.50 to 19.00
Chicago	17.00 to 17.50
Eastern Pa.	18.00 to 19.00
Pittsburgh	20.50 to 21.00
St. Louis	16.00 to 16.50

LOW PHOSPHORUS

Buffalo, billet and bloom crops	19.00 to 20.00
Eastern Pa.	19.00 to 20.50
Pitts. billet and bloom crops	22.50 to 23.00
Cleve. billet and bloom crops	17.50 to 18.00

FROGS, SWITCHES, GUARDS

Chicago	17.00 to 17.50
St. Louis	15.50 to 16.00

SHOVELING STEEL

Chicago	16.00 to 16.50
Cleveland	12.00 to 12.50
Detroit	10.75 to 11.00
Pittsburgh	18.50 to 19.00
St. Louis	13.75 to 14.25

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	9.50 to 10.50
Boston, dealers	11.50 to 12.00
Buffalo, No. 1	13.50 to 14.00
Buffalo, No. 2	16.00 to 17.00
Chicago, No. 1	15.75 to 16.25
Chicago, No. 2	16.00 to 16.50
Cinn., No. 2	14.50 to 15.00
Eastern Pa.	16.00 to 16.50
N. Y., No. 1 deal.	12.00 to 12.50
Pittsburgh, No. 1	15.00 to 15.50
Pittsburgh, No. 2	18.50 to 19.00
St. Louis, No. 1	14.00 to 14.50
St. Louis, No. 2	14.00 to 14.50

SPECIFICATION PIPE

Boston	11.00 to 11.50
Eastern Pa.	16.00 to 16.50
New York, deal.	11.25 to 11.75

BUSHELING

Buffalo, No. 1	15.50 to 16.50
Chicago, No. 1	14.00 to 14.50
Cinn., No. 1 deal.	11.00 to 11.50
Cinn. No. 2	8.00
Cleveland, No. 1	13.00 to 13.50
Cleveland, No. 2	11.75 to 12.25
Detroit, No. 1	12.50 t o13.00
Detroit, No. 1	12.50 to 13.00
St. Louis, No. 1	10.00 to 10.50

MACHINE SHOP TURNINGS

Birmingham	9.00 to 9.50
Boston	6.75 to 7.00
Buffalo	8.75 to 9.25
Chicago	10.00 to 10.50
Cincinnati, deal	10.00 to 10.25
Cleveland	10.50 to 11.00
Detroit	8.00 to 8.25
Eastern Pa.	12.00
New York, deal.	8.00
Pittsburgh	11.50 to 12.00
St. Louis	8.00 to 8.50
Valleys	12.00 to 12.50

MIXED BORINGS, TURNINGS
For blast furnace use

Boston, dealers	6.00 to 6.75
Buffalo	11.75 to 12.25
Cincinnati, deal.	10.25 to 10.75
Cleveland	11.75 to 12.25
Detroit	9.75 to 10.00
Eastern Pa.	10.50 to 11.00
New York, deal.	6.25 to 7.25
Pittsburgh	12.50 to 13.00

CAST IRON BORINGS

Birmingham, chem.	13.00 to 13.50
Birmingham, plain	9.00 to 9.50
Boston, chem.	10.25 to 10.50
Boston, dealers	6.50 to 7.00
Buffalo	11.75 to 12.25
Chicago	13.00 to 13.50
Cincinnati, deal.	10.25 to 10.75
Cleveland	11.75 to 12.25
Detroit	9.75 to 10.00
Eastern Pa.	11.00 to 11.50
Eastern Pa., chem.	14.50 to 15.00
New York, deal.	7.00 to 7.50
Pittsburgh	12.50 to 13.00
St. Louis	10.50 to 11.00
Valleys	12.50 to 13.00

PIPE AND FLUES

Cincinnati, deal.	9.00 to 9.50

RAILROAD GRATE BARS

Buffalo	13.50 to 14.00
Chicago, net	12.50 to 13.00
Cincinnati	10.00 to 10.50
Eastern Pa.	12.50 to 13.00
New York, deal.	9.25 to 9.75
St. Louis	12.50 to 13.00

FORGE FLASHINGS

Boston, dealers	9.50 to 10.00
Buffalo	13.75 to 14.25
Chicago	10.50 to 11.00
Cleve., over 10 in.	13.00 to 13.50
Detroit	12.50 to 13.00
Pittsburgh (light)	15.50 to 16.00

FORGE SCRAP

Boston, dealers	8.75 to 9.50
Chicago	18.50 to 19.00
Eastern Pa.	12.00 to 13.00

ARCH BARS AND TRANSOMS

Chicago, net	21.50 to 22.00
St. Louis	22.25 to 22.75

Iron, Steel Works Scrap

AXLE TURNINGS

Boston, deal	6.75 to 7.00
Buffalo	14.00 to 14.50
Chicago	13.00 to 13.50
Cleveland	12.50 to 13.00
Eastern Pa.	13.00 to 14.00
Pittsburgh	16.00 to 16.50
St. Louis	11.75 to 12.25

STEEL CAR AXLES

Birmingham	16.00 to 17.00
Boston, ship point	17.00 to 17.50
Buffalo	19.00 to 19.50
Chicago	18.00 to 18.50
Eastern Pa.	22.00
Pittsburgh	21.50 to 22.00
St. Louis	20.50 to 21.00

SHAFTING

Boston, ship point	14.00 to 14.50
Chicago	17.35 to 17.90
Eastern Pa.	19.00 to 20.00
New York, deal.	15.00 to 15.50
St. Louis	18.50 to 19.00

Iron Foundry Scrap

CAR WHEELS

Birmingham, iron	12.00 to 13.00
Boston, iron	14.00 to 14.50
Buffalo, iron	14.00 to 14.50
Buffalo, steel	18.00 to 19.00
Chicago, iron	14.50 to 15.00
Chi., rolled steel	19.25 to 19.75
Cincinnati	13.00 to 13.50
Eastern Pa., cast	16.50 to 17.00
Eastern Pa., rolled	18.00 to 19.00
N. Y., iron, deal.	12.50 to 13.00
Pittsburgh, iron	16.00 to 16.50
Pittsburgh, steel	20.00 to 20.50
St. Louis, iron	15.00 to 15.50
St. Louis, steel	17.50 to 18.00

No. 1 CAST SCRAP

Birmingham, cup.	14.50 to 15.50
Buffalo	16.00 to 16.50
Boston, textile	13.50 to 14.50
Chicago, mach.	17.90 to 18.50
Chicago, railroad	17.65 to 18.20
Chicago, agri.	16.25 to 16.80
Cincinnati, mach. cupolas, gross	19.50 to 20.00
Cleveland, cupola	16.50 to 17.00
Detroit, net	13.00 to 13.50
Eastern Pa. cupola	16.50 to 17.00
N. Y., cup., deal.	13.00 to 13.50
N. Y., del. local foundries	17.00 to 17.50
Pittsburgh, cupola	15.00 to 15.50
San Fran., del.	13.50 to 14.00
Seattle	16.00 to 16.25
St. Louis, mach.	16.00 to 16.50
St. Louis	15.00 to 15.50
Valleys	16.50 to 17.00

HEAVY CAST

Boston	10.50 to 11.00
Buffalo, breakable	13.00 to 13.50
Cleve., breakable	12.50 to 12.75
Detroit, auto., net	19.00 to 19.50
Detroit, breakable	10.00 to 10.50
Eastern Pa.	16.50 to 17.00
New York, deal.	12.00 to 13.00
Pittsburgh	14.25 to 14.75

MALLEABLE

Boston, railroad	16.50 to 17.00
Buffalo	17.00 to 17.50
Chicago, agri.	15.50 to 16.00
Chicago, railroad	19.00 to 19.50
Cinn., R. R., deal.	15.25 to 15.75
Cinn., agri., deal.	14.25 to 14.75
Cleveland, rail	16.00 to 16.50
Detroit, auto	14.50 to 15.00
St. Louis, rail	16.50 to 17.00

Miscellaneous Scrap

RAILS FOR ROLLING
5 feet and over

Birmingham	13.00 to 14.00
Boston, dealers	12.00 to 12.50
Rails scrap, Boston	12.00 to 12.50
Skeleton, Boston	9.50 to 10.00
Buffalo	15.75 to 16.25
Chicago	17.50 to 18.00
Eastern Pa.	16.50 to 17.00
New York	14.00 to 14.50
Pittsburgh district	18.50 to 19.00
St. Louis	16.00 to 16.50

LOCOMOTIVE TIRES

Chicago, cut	19.00 to 19.50
St. Louis, No. 1	15.00 to 15.50

LOW PHOS. PUNCHINGS

Chicago	18.00 to 18.50
Pittsburgh	20.00 to 20.50

of scrap last week. Generally there was a slightly lower price range, though heavy melting steel was a shade firmer.

New York, Feb. 5.—An easing market and placing of 20,000 tons of No. 1 heavy melting steel by the Bethlehem Steel Corp. feature the scrap market. Dealers' buying prices have been reduced on several grades, due to less demand for western Pennsylvania points and to lower prices at Weirton, W. Va. Dealers now are paying $18.25, delivered Weirton, for heavy melting steel. On the recent purchase of heavy melting steel for Bethlehem, dealers are paying $15.50, delivered. The Bethlehem corporation's purchase price was higher than its previous figure, but not high enough to alter the range of the market. A Claymont, Del., consumer has temporarily suspended shipments on heavy melting steel.

Philadelphia, Feb. 5.—Iron and steel scrap has receded somewhat from its recent high level and a buyer has covered a tonnage of heavy melting steel at $17, a previous recent purchase being at $17.50. This followed a large purchase by Bethlehem Steel Co. at a lower price. General buying is good.

Pittsburgh, Feb. 5.—Heavy melting steel has settled to a quotable range of $18.50 to $19, following a sale to a mill in this district at the latter figure. Dealers generally are offering no more than $18.50 for this grade and some has been obtained at $18.25. Steel specialties are quiet and although a recent small sale brought $21, consumers have not been active buyers. Blast furnace material is easier, with $13 representing the top of the market. Heavy breakable cast is off, and hydraulic compressed sheets follow the downward movement in heavy melting steel. The February list of the Pennsylvania railroad, on which bids closed Feb. 6, included 61,310 tons of scrap. The usual quiet is looked for in the market until after the closing of this list. Several mills continue to hold up shipments.

Buffalo, Feb. 5.—Long expected tonnage business in No. 1 heavy melting steel still is pending. A Buffalo steelworks continues to buy at $18 for the best grade, and is paying proportionate prices for selected No. 1 busheling and hydraulic compressed sheets.

Detroit, Feb. 5.—An oversupply of scrap has weakened the market. It has not recovered as yet from the effects of 20,000 tons of turnings, etc., offered last week by one automobile company. About 5000 tons of this was sold a Cleveland mill at $9.50. The next day dealers would offer only $8.50. Increased output in February is reflected in each list being submitted by automobile companies and parts makers.

Cincinnati, Feb. 5.—Scrap weakness in other markets is being reflected in the Cincinnati district. Dealers display conservatism in making purchases of heavy melting steel and are paying 25 cents a ton less than a week ago. A similar decline is noted in scrap rails, cast iron borings and short rails. Rails for rolling and railroad wrought iron have slipped 25 to 50 cents a ton.

Cleveland, Feb. 5.—Mills here are well supplied with scrap and are not placing orders, although one bought several thousand tons of turnings at $9.50 in Detroit last week. The market has not slipped here as much as at Detroit and in the Valley. In Youngstown, heavy melting steel is down 50 cents per ton. Here it remains $15.50 to $16. Machine shop turnings here are $10.50 to $11; in the valley about $1.50 higher.

St. Louis, Feb. 5.—Upward price revisions were the rule in iron and steel scrap. Practically all important grades recorded a new high on the present movement. Material, particularly steel, is increasingly hard to obtain, and the belief prevails that still higher prices are likely. While there is good current buying by consumers, tonnages are chiefly small. Large tonnages are apparently wanted, but melters will not pay the prices asked, and holders refuse to take concessions.

Birmingham, Ala., Feb. 5.—The scrap market is unchanged except that lower quality heavy melting steel cannot easily be obtained. The better quality steel is bringing $12.50, with a fairly good demand.

Toronto, Ont., Feb. 5.—While a few minor price changes were reported by Montreal dealers, Toronto iron and steel scrap prices are unchanged. Demand for most grades is improving, but iron grades are moving much more freely than steel. Slight improvement was reported in steel scrap sales from the Hamilton district. Buying was chiefly from concerns needing additional supplies. Montreal scrap market is strong.

File Supplemental Briefs on Metals Tariff

Washington, Feb. 5.—Supplemental briefs on the metals schedules of the tariff act have been filed with the house ways and means committee by A. J. Lockwood, president, and W. D. Thomas, secretary, of American Importers of Fine Steel; Dr. John A. Mathews, of the committee of tool and fine steel manufacture; and H. Boker & Co., New York.

The Pacific Coast Steel Co. and the Southern California Iron & Steel Co. have filed a brief asking that the tariff on imported steel bars, reinforcing bars and structural shapes be on an ad valorem rate, based on prevailing wholesale prices at the port of entry at the time of arrival of foreign shipments. The Broderick & Bascom Rope Co., St. Louis, recommends an adjustment of the schedule on wire rods, rope wire and wire rope.

Canadian Scrap

Dealers' Buying Prices

MONTREAL
Per Gross Tons

Iron axles	$22.00
Steel axles	20.00
Car wheels	16.00
Stove plate	13.00
Wrought pipe	6.00
Turnings	6.50
Heavy melting steel	8.00

TORONTO

Steel axles	14.00
Iron axles	16.00
Heavy melting steel	9.50
Turnings	7.00
No. 1 mach. cast (net)	15.00
Malleable (net)	13.00

Semifinished Steel

Material Continues Scarce—Prices Are Firm

SEMIFINISHED STEEL PRICES, PAGE 412

Pittsburgh, Feb. 5.—Active operations in finishing mills, coupled with a good demand for semifinished steel, give prospects of resulting in a scarcity of sheet bars, billets and slabs. Sheet and strip producers are active consumers of semifinished steel and are showing some anxiety as to the future source of material. This has not been reflected in price advances, although current quotations of $33 for rerolling billets and slabs, and $34 for sheet bars are strong. Wire rods are firm at $42, with demand active.

Youngstown, O., Feb. 5.—Scarcity of semifinished steel is more marked. Some sheet mill units are unable to run due to inability to obtain sufficient sheet bars. Independent open-hearth operations in the valley are at 92 per cent, against 90 per cent last week. Sheet bars are firm at $34, Pittsburgh and Youngstown, and billets and slabs at $33, same bases. Wire rods are steady at $42, Pittsburgh and Cleveland.

Cleveland, Feb. 5.—Specifications for semifinished steel continue heavy. After operating all of its 14 open hearths for several weeks, the leading merchant producer here was forced to drop back to 13 this week, to repair one. It is operating finishing mills at full capacity. Semifinished steel prices are steady.

Light Stack at Chicago

Chicago, Feb. 5.—Steelworks operations have gained slightly in the Chicago district and now are about 92 per cent of rated ingot capacity. Illinois Steel Co. has blown in another steelworks stack at South Chicago, making 18 of its 27 furnaces blowing. This makes three furnaces blown in by that interest in the past three weeks. Twenty-seven of the 36 furnaces in the district now are active. All plate mills are virtually in full operation. Bar mills are at capacity.

Will Hold Conference

Washington, Feb. 5.—Federal trade commission will hold a trade practice conference for the reinforcing steel industry, at a date not yet set. Chairman Edgar A. McCulloch of the commission will preside.

The Market Section

Bars

Production Heavy and Delivery Somewhat Delayed—Wide Variety of Uses Taking Tonnage

PRODUCERS of soft steel bars find backlogs well built up and specifications are heavy. Mills find difficulty in meeting requests for delivery and are apportioning tonnage to avoid distress. Chicago mills are especially heavily loaded. Conditions are similar in the East, though to a less degree. No question exists as to price, delivery being the problem.

BAR PRICES, PAGE 411

Chicago, Feb. 5.—Bar orders are widely diversified and are in such volume as to keep all mills in the district engaged at practical capacity. Bar specifications during the week made a 20 per cent gain over the preceding period. The week just closed was the third highest in specifications for bars and other finished products this year, while sales of all heavy finished products were well above the weekly average for last year. The relative strength of bar specifications over sales shows that the main concern of buyers is to get material into their yards for immediate consumption, with less interest for future coverage than for some months. Mills are becoming more cautious about promising deliveries. Mill schedules are elastic enough to handle all orders now, with shipments distributed in such allotments as to give buyers partial accommodations if not entire harmony with urgent demands.

Soft steel bars are 2.00c to 2.10c, Chicago. Most tonnage, however, is moving at a 2.00c to 2.05c range, with only miscellaneous small lots at 2.10c.

New York, Feb. 5.—Steel bar consumption continues at an unusual rate. January specifications approximately equal the best months of 1928. The market is featured by many urgent requests for quick shipments. Prices remain firm, the current range being 1.90c to 2.00c, base, Pittsburgh, while differentials below this range prevail only in highly special cases.

Philadelphia, Feb. 5.—Steel bar demand is well maintained, with prices firm at 1.90c to 2.00c, base, Pittsburgh.

Pittsburgh, Feb. 5.—Merchant bar operations are well sustained and although delivery of one week is obtainable in certain instances, most sizes run from two to three weeks. Although some consumers are showing gradual expansion in their commitments, demand generally is well diversified. Cold bar finishers are specifying steadily and tonnage moving to automotive interests is increasing. The market is 1.90c to 1.95c, Pittsburgh.

Cleveland, Feb. 5.—February business in steel bars shows no letup from the gait of January, which was a record one for practically all bar sellers here. Insistence upon prompt shipment is marked. Automotive needs continue dominant, though rivet and bolt and nut makers are taking round lots. Local mills quote steel bars at 1.90c, Cleveland, while outside mills ask 1.95c, delivered Cleveland.

Detroit, Feb. 5.—Merchant steel bar sellers have had the most active January in history. Tonnages have been increasingly heavy for forge shops and other automotive purposes. Users want more material and better deliveries in February. Even large tonnage buyers are paying 1.90c, Pittsburgh. Only on undesirable tonnages is it possible to obtain 1.95c. Carbon extras sometimes are waived or halved or some other slight concessions made when competition becomes keen but the base price is firmly held.

Bethlehem May Buy Its Scrap Direct

Philadelphia, Feb. 5.—That the Bethlehem Steel Corp. is definitely laying plans for the purchase of scrap direct from railroads and industrial plants is the interpretation of many in the local scrap trade of reports current here. Recently, it is understood, the Bethlehem Steel Corp. has established a scrap preparation yard at its Fore River plant in Massachusetts, from which scrap will be shipped by boat to its Sparrows Point plant. A preparation yard is also being laid out at its plant at Bethlehem, Pa. The Bethlehem corporation is said to be negotiating with various eastern railroads and industrial plants for their total production of such scrap as it can use.

Plates

Larger Demands Developing—Chicago District Mills Operating at Capacity—Prices Steady

CHICAGO district plate mills are operating at capacity, due to recent heavy orders. Additional inquiries for 17,000 tons of tank plates have appeared, while 100,000 tons of plate or skelp is pending for the projected gas line from Louisiana to St. Louis. The market outside of the Chicago district also shows more activity. Bids will be opened at Pittsburgh on 2800 tons for barges.

PLATE PRICES, PAGE 411

Chicago, Feb. 5.—Shipments of plate for welded pipe awarded to a Milwaukee fabricator now approximate 1200 tons daily from Chicago district mills, and will continue thus for about six months, according to existing schedules. New orders recently added for welded pipe brings the plate tonnage now on mill books for that fabricator to 180,000 to 185,000 tons. One maker is putting on a 90-inch plate mill, which will bring the district's plate operations to capacity, including 160-inch. Plates on inquiry for oil storage total close to 17,000 tons, including 15,000 tons for about 50 tanks for Humble Oil & Refining Co., in West Texas, and about 1800 tons in that district for Roxana Petroleum Co. Progress on the Humble project depends on that company's plans for production. In addition, an unstated tonnage is pending for an oil line from West Texas to Arkansas. About 100,000 tons of plate or skelp is pending on a projected gas line from Louisiana to St. Louis. Deliveries are being extended to three to four weeks. The price range is 2.00c to 2.10c, Chicago, but 2.10c is nominal.

Pittsburgh, Feb. 5.—The Memphis, Tenn., office of the United States engineers will take bids Feb. 20 on 25 steel barges involving 2800 tons of plates and shapes. The Cincinnati office of the United States engineers is expected shortly to inquire for 16 pontoon barges involving around 500 tons of plates and shapes. American Bridge Co. was successful bidder on 20 barges for the Rock Island, Ill., office of the United States engineers. This equipment involves 1800 tons of fabricated steel. Additional barge inquiry is looked for soon from private interests in addition to 75 barges the Federal Barge Line is expected to buy this year. Plate demand for miscellaneous purposes is fairly steady. The market generally is 1.90c, base, Pittsburgh.

Cleveland, Feb. 5.—Demand for small, miscellaneous tonnages improves the plate market. A local mill is able to make deliveries within a week; outside mills name one to two weeks. A few orders involve 300 to 500 tons at a time. One lot of 600 to 800 tons is up for bids for a locomotive building shop. Plates are 1.90c to 1.95c, base, Pittsburgh.

Detroit, Feb. 5.—Plate prospects are bright so far as pipe lines are concerned. Tank work, however, seems

at low ebb. A water tunnel for the Ford Motor Co. at Fordson, Mich., is expected to take 7500 tons. Plates are 1.90c, base, Pittsburgh.

New York, Feb. 5.—Standard Oil Co. of New Jersey has placed 1000 to 1500 tons of tank and still bottom plates, principally for shipment to Canada and to Canton, Md. Considerable additional oil plate requirements are in prospect. Miscellaneous demand for plates is good and some mills are unable to promise delivery before two to three weeks. Prices continue 2.00c to 2.10c, base, Coatesville. Few buyers are obtaining differentials on their plate purchases.

Philadelphia, Feb. 5.—Plate demand continues brisk. Some eastern mills are operating practically full, with backlogs for two or three weeks. Prices range from 2.00c to 2.10c, base, Coatesville, subject to occassional differentials.

CONTRACTS PLACED

3000 tons, four 134,000 and two 118,000-barrel tanks for Shell Oil Co., at Martinez, Calif., to Western Pipe & Steel Co.

656 tons, 30-inch riveted pipe line, Los Angeles, to Lacy Mfg. Co.

600 tons, 30-inch welded pipe line, Monterey, Calif., to Western Pipe & Steel Co.

200 tons, 24-inch pipe line, Marin Municipal Water District, San Rafael, Calif. to Western Pipe & Steel Co.

CONTRACTS PENDING

7500 tons, 12,000-foot water tunnel, Ford Motor Co., Fordson, Mich., from power plant to mouth of Rouge river. Cost to be borne by the Ford company; title to pass to city of Detroit.

2800 tons, plates and shapes, 19 flat top barges and six cargo barges for United States engineers, Memphis, Tenn.; bids opened Feb. 20.

1512 tons, 60-inch pipe, Board of Water Commissioners, Denver. Bids Feb. 11.

1000 tons, water system, Mt. Clemens, Mich.; bids March 1.

1000 tons, (estimated) pipe line for Detroit department of public works; out for figures Feb. 15.

900 tons, (sheet piling) dock and terminal, Grand Trunk railroad, Muskegon, Mich. Bids in.

104 tons, 20 or 30-inch riveted pipe, Glendale, Calif.; Lacy Mfg. Co. is low bidder.

Buffalo Rate at Peak

Buffalo, Feb. 5.—Steelworks operations at the beginning of this week reached their high point of the year, with 32 of the 37 open hearths in the district making steel. Continuance of large operation, governed largely by necessary repairs, is anticipated for February.

William Hoffman Is Dead

William L. Hoffman, 50, head of William L. Hoffman & Co., Philadelphia, which represented the Empire Steel Corp. in that city, died in Germantown, Pa., Feb. 1, of heart failure after a lengthy illness. He formerly represented Hickman, Williams & Co., the Brier Hill Steel Co., and others.

Pipe

5190-Ton Lot Let—French Makers Low on 9000 Tons—Byers Awarded 2100 Tons for Export

PUBLIC utility company at New York places 5190 tons of cast pipe with American makers, but French makers are reported to be low on the 9000 tons for Philadelphia. More than 6000 tons is up in nine projects in the West, where 2197 tons was awarded. A 1300-ton lot is pending in Brookyln, and Buffalo sellers expect a 25-mile inquiry soon. One 2100-ton lot of wrought pipe was let.

PIPE PRICES, PAGE 412

Chicago, Feb. 5.—Sellers of cast iron pressure pipe regard the outlook as much better than two months ago. Feelers are out for much spring business. Figures have been taken on several large private projects which may be closed soon. Most of the winter private buying has been completed. The 400 tons of 36-inch pipe to be bought for the Milwaukee sewage commission will be let through a contractor. New Harmony, Ind., has purchased 200 tons of 4 to 8-inch pipe, the award having been made on a linear basis. Carload prices are well sustained at $45.20 to $46.20, delivered Chicago.

New York, Feb. 5.—Award of 5190 tons of gas pipe has been made by the Allied Power & Light Co. Orders generally are small, with an improved industrial demand featured as distinguished from public utility work. Municipal buying is negligible. Unconfirmed reports are that Herbert Kennedy & Co., representing French makers, are low on the bulk of 9000 tons of gas pipe now being figured by the United Gas Improvement Corp., Philadelphia.

Pittsburgh, Feb. 5.—January demand for tubular products was active, although selling largely was confined to small diameter seamless products. Oil fields specify casing material steadily. Mechanical tubing moves in substantial volume to automotive interests. Some improvement is noted in demand for boiler tubing. Welded material, particularly lapweld pipe for the oil country, continues slow. Line pipe is quiet both as to awards and inquiries.

An award of 2100 tons for shipment to South America features the wrought iron pipe market.

Buffalo, Feb. 5.—Kenmore, a Buffalo suburb, is planning a new waterworks project, involving one of the largest pipe tonnages proposed here in recent years. A line would be built from Wyoming, N. Y., a distance of about 25 miles. Other enlargements and installations in the village itself will increase the tonnage considerably. Plans have not been developed to a point where an estimate of tonnage involved is practical. Pipe sales in general have been fair during the past 10 days.

Cleveland, Feb. 5.—Jobber orders for pipe were seasonally good for the past two weeks in the experience of nearby producers. These orders mostly were from mill supply houses, which found it necessary to replenish depleted stocks. Spring buying by plumbers' jobbers is expected to involve a large aggregate tonnage, since so much building is planned.

Birmingham, Ala., Feb. 5.—Few cast iron pipe lettings are being received. Production, however, is being speeded up to improve shipments of unfilled tonnage on books. The usual spring rush is expected and makers now are stocking up for it. Shipments of pressure pipe to the West and Northwest are fairly heavy despite bad weather in those sections.

CONTRACTS PLACED

CAST PIPE

5190 tons, 4 to 16-inch gas pipe for Allied Power & Light Co., New York, to United States Cast Iron Pipe & Foundry Co.

1515 tons, 6-inch class 350, Los Angeles; 606 tons to American Cast Iron Pipe Co., and 909 tons to Pacific States Cast Iron Pipe Co.

200 tons, 4, 6 and 8-inch pipe for New Harmony, Ind., to McWane Cast Iron Pipe Co.

140 tons, 4 to 8-inch class C, improvement Fanuel street, San Diego, Calif., to Ben Pearce.

WROUGHT IRON PIPE

2100 tons, 2, 4 and 6-inch wrought iron pipe for Lago Petroleum Corp., for shipment to Maracaibo, Venezuela, to A. M. Byers Co.

CONTRACTS PENDING

CAST PIPE

9000 tons, gas pipe for United Gas Improvement Corp., Philadelphia, Herbert Kennedy & Co., representing French makers, reported low on bulk of tonnage.

2242 tons, 12-inch class A to B, Southern Pacific Co., San Francisco; bids Feb. 7.

1350 tons, 2 to 10-inch class B, Lomita district No. 13, Los Angeles; bids Feb. 18.

1300 tons, 8 to 12-inch gas pipe for Brooklyn Gas Co., Brooklyn, N. Y.; early action expected.

1103 tons, 2 to 12-inch class B or centrifugal, East Bay municipal water district, Oakland, Calif.; bids Feb. 6.

400 tons, 36-inch pipe for Milwaukee, sewage commission; bids Feb. 8.

304 tons, 4 to 8-inch class B, Toledo, Wash.; bids received.

302 to 405 tons, 8 and 10-inch class B, Suisun, Calif.; bids received.

240 tons, 8 and 16-inch class B, Aberdeen, Wash.; bids received.

234 tons, 20 and 24-inch class B, Glendale, Calif. United States Cast Iron Pipe & Foundry Co. low.

176 tons, 4 to 8-inch class B, Santa Ana, Calif.; bids Feb. 4.

119 tons, 8-inch class B, Eureka, Calif.; bids Feb. 5.

Tin Plate

Shipments Heavy—Operations Continue Around 90 Per Cent

TIN PLATE PRICES, PAGE 411

Pittsburgh, Feb. 5.—Tin plate producers have sufficient specifications to maintain operations at about 90 per cent. Sellers are optimistic regarding the year's tonnage. Canmakers' requirements are expected to approach a record level. Demand for other miscellaneous purposes is well maintained. January shipments were seasonally high and further improvement is anticipated in operations with the beginning of the more active demand for cans. Tin plate continuous $5.35 per 100-pound box, Pittsburgh.

Bolts, Nuts, Rivets

Specifications Are Active and Production Steady

NUT AND BOLT PRICES, PAGE 412

Pittsburgh, Feb. 5.—Specifications for bolts, nuts and rivets continue active and operations are at 70 per cent. January tonnage was seasonally high and for some makers better than a year ago. Rivet makers are quoting 3.10c, Pittsburgh, on ½-inch and larger in diameter, although business largely is restricted to buying against contracts at the previous 2.90c basis. Bolts and nuts continue 60 to 70 off. Manufacturers profess to be adhering to 10 per cent extra for broken cases.

Cleveland, Feb. 5.—Rivet orders are not yet being placed at the new 3.10c figure. Deliveries on 2.90c contracts, however, are increasing as specifications mount.

Chicago, Feb. 5.—Advance of $4 in the price of structural rivets in carload lots has had no immediate effect except giving indication that specifications on the present contracts will be unusually heavy for first quarter. Specifications for bolts and nuts are picking up. A gain has been noted particularly in the past two weeks. Carriage and machine bolts continue steady at 60 to 70 off.

Strip Mills at Capacity

Pittsburgh, Feb. 5.—Steelmaking operations in the Pittsburgh district are slightly above 85 per cent of capacity. Finishing mill operations generally are unchanged but seasonally active. Strip mills are at capacity, with sheet mills at 95 per cent. Tin plate is about 90 per cent. Seamless tube production at 75 to 90 per cent shows an improvement over welded operations of about 60 to 70 per cent.

Rockford Gas Light & Coke Co., Rockford, Ill., recently opened its addition of 21 by-product ovens.

Sheets

Market Is Active—Prices Firm—Lack of Semifinished Steel Retards Valley Sheet Operations

SHEET demand continues at a high rate, some mills having difficulty in delivering material as required. A shortage of sheet bars is slowing up production in the Mahoning valley, independent mill operations this week averaging 96 per cent as against 99 per cent last week. One lot of 3000 tons of blue annealed sheets was booked at Cleveland at 2.10c, base, Pittsburgh.

SHEET PRICES, PAGE 411

Pittsburgh, Feb. 5.—Sheet mills are continuing the active operations which characterized January. Shipments last month for most mills were a record and tonnage moved by the largest producer was the heaviest in its history for that period. Specifications continue active, and extended deliveries on full finished material prevail. Most mills are unable to ship autobody and furniture sheets in less than five weeks, and desire for quicker shipments is prompting buyers to shop around. Although the automobile industry is taking large tonnages of material, some spottiness still is evident in operations. Recent reports of price shading on black and galvanized sheets largely are discounted and mills profess to be receiving full quoted levels on material. These prices are 2.85c, base, Pittsburgh, on sheet mill black, 3.00c on tin mill black, 3.60c on galvanized, 2.10c on blue annealed, and 4.10c on autobody. Galvanized sheet buying is fairly steady and some improvement is noted in demand from railroad car builders. Operations in the district continue at around 95 per cent.

New York, Feb. 5.—Sheet demand continues active. Although some of the more important consumers are seeking lower prices, indications are the prevailing level is firm. If there are any differentials under the present market prices in this territory they are being allowed in few cases. Makers of blue annealed sheets let business go to stripmakers rather than sacrifice price. In galvanized sheets some of the larger jobbers are getting a differential, but otherwise the price is firm at 3.60c, base, Pittsburgh. A number of attempts have been made recently to buy black sheets at less than 2.85c, base, Pittsburgh, but that figure is holding well.

Buffalo, Feb. 5.—Demand for all grades of sheets is heavy. Prices are 2.85c, base, Pittsburgh, for black; 3.60c for galvanized, and 4.10c for full finished. Buffalo steel works producing sheets are operating at 85 to 90 per cent and have large unfilled tonnage on their books.

Youngstown, O., Feb. 5.—Sheet mills in this district might be operating this week at higher rates than 96 per cent if supplies of sheet bars were equal to demand. Independents were operating at 99 per cent last week. Autobody sheetmakers are fully scheduled through February, while makers of common black are scheduled for two or three weeks. Two makers of auto parts have entered the market for important tonnages. Prices are firm at 3.60c, base, Pittsburgh, for galvanized, 2.85c for common black, 2.10c for blue annealed, with orders growing for this grade, and 4.10c for autobody.

Philadelphia, Feb. 5.—Sheet demand continues heavy. Most mills are booked well ahead, at least two mills practically through the first quarter. Black sheets are firm at 2.85c, base, Pittsburgh, and galvanized at 3.60c, subject to the usual jobbers' differentials. Blue annealed is bringing 2.10c, base, Pittsburgh, although occasionally sold at 2.00c, especially where competing with wide strip.

Cleveland, Feb. 5.—Attractive tonnages of sheets are now being specified on first quarter contracts, carrying higher figures. Much of the tonnage shipped out in January was carried over, having been booked for shipment at mill convenience, at fourth quarter prices. Now the new Pittsburgh levels of 4.10c on full finished, 2.85c on black, 3.60c on galvanized and 2.10c on blue annealed, are fully applicable. One lot of 3000 tons of blue annealed sheets was booked yesterday at 2.10c. Deliveries of certain grades of electrical sheets and full finished are deferred to the week ending May 4.

Detroit, Feb. 5.—Increasingly large specifications are accruing to sheet mills as automobile companies definitely plan first quarter output. As the result of accumulated requirements, mills have sizable backlogs. With one exception, producers are adhering to openly-quoted market figures.

Chicago, Feb. 5.—Sheet mill operations are slightly heavier this week. One group of hot mills is operating in full, and the rate for the district is 80 to 85 per cent. Mills are receiving light specifications. Automotive buying is not an important factor in this district. Despite reports of sales made in the Detroit district at concessions, the general market is reported steady at 3.00c for No. 24 black, 3.75c for No. 24 galvanized, and 2.25c for No. 10 blue annealed.

January shipments of steel sheets made a record for the month in this district.

St. Louis, Feb. 5.—Blue annealed sheets are in general demand while galvanized material is less active.

Structural Shapes

First Half May Exceed Same Period Last Year in Tonnage Awarded—14,000-Ton Job Let in Philadelphia—Pending Work Large

GRADUAL creeping up on the total of structural awards of a year ago at this time, lettings for the first six months of 1929 will exceed those of the initial half of 1928, providing all pending work materializes. Outstanding awards of the week include 14,000 tons for a Philadelphia store and 4000 tons for subway work and 3900 tons for an apartment in New York. Among jobs definitely up for bids are a 6600-ton apartment in Chicago and two office buildings in New York, 5000 and 3000 tons, respectively. Mills are receiving fairly active specifications but they are largely for individual jobs in the hands of fabricators. Little material is wanted for stock purposes. Prices on raw material are firm in most sections. Bidders still indicate a hunger for work.

STRUCTURAL SHAPE PRICES, PAGE 411

New York, Feb. 5.—Structural buying continues slow, although awards appear slightly more numerous. A leading contract involves 4000 tons for subway work. Fresh inquiry is confined to relatively few tonnages; nevertheless, contemplated work is heavy and an early improvement appears likely.

The New York Structural Steel Board of Trade reports 20,825 tons awarded in the metropolitan district during January, exclusive of subways, etc. This compares with 35,000 tons for December.

Philadelphia, Feb. 5.—Shape demand continues on a larger scale with eastern mills operating at 75 to 85 per cent. The 14,000-ton Strawbridge & Clothier Co. store here has been let. Prices continue at 2.00c to 2.10c, base, eastern mill, and down to 1.90c, mill on attractive business. On occasional large lots further differentials are allowed.

Pittsburgh, Feb. 5.—Specifications for plain structural material are well maintained for this period, although fabricated awards in this district are somewhat restricted. Fabricators have worked off most of their backlogs.

Buffalo, Feb. 5.—An inquiry for approximately 1000 tons of structural steel is expected shortly for a 12-story hotel to be erected in Delaware avenue by the Lasser-Preyer Corp. A second project, approximately the same size, is under consideration in West Ferry street.

Cleveland, Feb. 5.—Definite structural inquiries are more numerous. Recent awards include 800 tons for the power house at Gadsden, Ala., for the Goodyear Tire & Rubber Co., Akron, O., placed with McClintic-Marshall Co., and the 700-ton Bing Furniture Co., store building, Cleveland, awarded the Massillon Bridge & Structural Co., which also received a smaller tonnage for the fruit auction building of the Nickel Plate railroad.

Detroit, Feb. 5.—Structural awards were numerous in January and promise to be more so in February. Work aggregating about 50,000 tons is in the air, and most of it is to be rushed. The Murray Corp. of America has let its Tennessee plant, taking 1475 tons. The Detroit-Edison Co.'s substation, taking 1000 tons, has been awarded. Several office buildings are up, including some for the Michigan Bell Telephone Co. Shapes are firm at 1.90c to 1.95c, Pittsburgh.

Chicago, Feb. 5.—About 3000 tons in building work and miscellaneous tonnage from car shops and manufacturing lines, comprised fresh structural activity during the week. Specifications for plain material to the mills were about 20 per cent over a week ago. In addition to the 2000 tons for the MacChesney building, the Panco building will require 6600 tons, the Athaneum club 1600 tons, and the addition to the Lawyer's building 1000 tons. Current specifications largely comprise awards for building and bridge work now on fabricators' books, with some requisitions for stock. Mills are able to maintain the $2 differential over Pittsburgh prices. Little is heard of the 2.10c, Chicago, quotation.

Awards Compared

	Tons
Awards this week	38,603
Awards last week	39,980
Awards two weeks ago	22,397
Awards this week in 1928	37,690
Average weekly awards, Jan.	35,583
Average weekly awards, 1928	39,082
Average weekly awards, 1929	34,420
Total awards to date, 1928	262,706
Total awards to date, 1929	206,519

CONTRACTS PLACED

14,000 tons, store building, Strawbridge & Clothier Co., Philadelphia, to American Bridge Co.

4000 tons, subway section 5, route 106, New York, to Bethlehem Steel Corp.

3900 tons, French apartment, Forty-second street and East river, New York, to Harris Structural Steel Co.

1650 tons, building, Aldine Trust Co., Philadelphia, to McClintic-Marshall Co.

1475 tons, plant, Memphis, Tenn., Murray Corp. of America, Detroit to Virginia Bridge & Iron Co.

1225 tons, bridges, Central Railroad of New Jersey, Cranford, N. J., to Bethlehem Steel Co.

1150 tons, public school No. 104, Bronx, New York, to Oltmer Iron Works.

1100 tons, office building, Madison avenue and Thirty-second street, New York, to Hedden Iron Construction Co.

1000 tons, Chandler street substation, Detroit-Edison Co., Detroit, to American Bridge Co.

1000 tons, open-hearth building, Inland Steel Co., Indiana Harbor, Ind., to Worden-Allen Co.

800 tons, power house at Gadsden, Ala., Goodyear Tire & Rubber Co., Akron, O., to McClintic-Marshall Co.

750 tons, St. Mark's cathedral, Seattle, to Wallace Bridge & Structural Steel Co.

700 tons, store building, Bing Realty Co., for Bing Furniture Co., to Massillon Bridge & Structural Co., through Sam W. Emerson Co., general contractor.

630 tons, hotel, Geary and Shannon streets, San Francisco, to McClintic-Marshall Co.

500 tons, highway viaduct, Jacksonville, Fla., to Virginia Bridge & Iron Works.

490 tons, buildings for Davison Coke & Iron Co., Neville island, Pittsburgh, to McClintic-Marshall Co.

480 tons, building at Philadelphia, International Harvester Co. to Bethlehem Construction Co.

450 tons, apartment, East Eighty-second street, New York, to Eastern Structural Steel Co.

350 tons, addition to foundry building, Ford Motor Co., Dearborn, Mich., to Whitehead & Kales Co.

254 tons, fruit auction building, Nickel Plate Development Co., Cleveland, to Massillon Bridge & Structural Co., through Hunkin-Conkey Construction Co., general contractor.

250 tons, hangars Nos. 4 and 5, Buffalo airport, Buffalo, to Tobol Iron Works.

250 tons, building, Pearl Street Savings & Trust Co., Cleveland, to National Iron & Wire Co., through H. E. Klefman Co., general contractor.

230 tons, building for John T. Lewis, Philadelphia, to Robinson Iron & Steel Co.

215 tons, building, Willard Storage Battery Co., Cleveland, to Republic Structural Iron Works, through Sam W. Emerson Co., general contractor.

210 tons, addition Rainier club, Seattle (160 tons) and shopping tower building, Seattle, 50 tons) to Wallace Bridge & Structural Steel Co.

200 tons, building, Michigan Smelting & Refining Co., Detroit, to Mahon Structural Steel Co.

200 tons, shoe factory, Milwaukee, to Worden-Allen Co.

179 tons, bridges on Holbrook highway, Phoenix, Ariz., to unstated interest.

175 tons, station work, Interborough Rapid Transit Co., New York, to American Bridge Co.

165 tons, hotel, Long Beach, Calif., to McClintic-Marshall Co.

150 tons, courthouse, Bronx, New York, to Dreier Iron Works.

125 tons, bridge, Valhalla, Westchester county, N. Y., to Harris Structural Steel Co.

125 tons, state bridge, Connecticut, to American Bridge Co.

125 tons, Wayne county bridge, No. 327, Michigan to Grosse Ile, to Mt. Vernon Bridge Co.

100 tons, addition to Gorham Tool Co., Detroit, to Mahon Structural Steel Co., through Martin-Krausman Co., general contractor.

CONTRACTS PENDING

6600 tons, Panco building, Wells and Monroe streets, Chicago.

5000 tons, 33-story brick and steel office building, Broadway and Forty-first street, New York.

3000 tons, 43-story Lefcourt office building,

Madison avenue and Forty-first street, New York.
3000 tons, produce terminal building, Detroit Union Produce Co., Detroit. General contract awarded Dwight P. Robinson Co., Philadelphia.
3000 tons, East street bridge, Pittsburgh. Bids Feb. 7.
1900 tons, 10-story Central telephone exchange building, Albany, N. Y.
1800 tons, boiler plant, Pennsylvania railroad, Philadelphia.
1600 tons, Athaneum building, Van Buren street, Chicago, Lundoff-Bicknell Co., general contractor.
1500 tons, garage, Allentown, Pa.
1200-1500 tons, Flint Union Bank & Trust Co., Flint, Mich.; preliminary plans ready.
1000 tons, building, Michigan Bell Telephone Co., Saginaw, Mich.; bids March 1.
1000 tons, meat produce building, Kroger Grocery & Baking Co., Detroit.
1000 tons, Ohio Bell Telephone Co., Akron, O. Bids. Feb. 8.
1000 tons, addition to Lawyer's building, Washington and La Salle streets, Chicago.
1000 tons, hotel, Buffalo, Lasser-Preyer Corp., Buffalo, builder.
1000 tons, building, New England Telephone Co., Bridgeport, Conn.
900 tons, building, Michigan Alkali Co., Detroit; bids in.
700 tons, building, Bank of Philadelphia, Philadelphia.
500 tons, building, Detroit Saturday Night Press, East Jefferson avenue, Detroit; bids closed Jan. 29.
400 tons, storm water pumping station, Connors Creek, Detroit. General contract to Lenane & McIlvenna; steel bids closed last week.
400 tons, building, Michigan Bell Telephone Co., Detroit; bids in.
350 tons, auditorium, Ferris Institute, Big Rapids, Mich.; out for bids.
250 tons, state armory, Utica, N. Y.
250 tons, state bridge, Union, N. J.
200 tons, Genessee county home, Flint, Mich.; general contract to Spence Bros., Saginaw, Mich.
100 tons, community building, Birmingham, Mich.; plans ready for bids.
100 tons, machine shop addition, Cadillac Motor Car Co., Detroit. General contract to A. A. Albrecht Co.
100 tons, St. James auditorium and parish hall, Ferndale, Mich.; to be let this week.
Unstated tonnage, Woolworth store building, 161st street, New York.
Unstated tonnage, temple Beth El, Waterbury, Conn.; Myers, Bigelow & Shanley, Waterbury, architects.
Unstated tonnage, United States post office and court house, Springfield, Ill. Bids close March 1.

Valley Steel Rate Holds Above 90 Per Cent

Youngstown, O., Feb. 5.—Steelworks operating rates in this district continue to hold above 90 per cent, with every promise that this rate will be maintained throughout the month. One additional independent open hearth has been added to the active list, making 47 units active out of a total of 51, or 92 per cent. Bessemer output remains unchanged. Independent bar mills are 70 per cent active, and the Carnegie Steel Co. continues at 85 per cent.

Of the 125 independent sheet mill units in this district, 120 units are active this week against 123 units last week, or a reduction from 99 per cent plus to 96 per cent, due to lack of steel supplies. Strip mills continue at capacity, as also are tin mills with the independents and 85 per cent with the Steel corporation subsidiary. Wrought pipe mills have 12 out of the 20 welded and seamless units active, compared with 14 units last week. The Byers puddle and skelp mills at Girard, O., continue working at 80 per cent of capacity.

The first use of structural shapes for square sets in main mine headings was about 1897.

Concrete Bars

Minneapolis Bank Takes 1500 Tons—Several 100 to 400-Ton Jobs Are Awarded

WEATHER conditions still hold up much activity requiring reinforcing steel. A Chicago interest, however, will fabricate 1500 tons of bars for a Minneapolis bank. A 400-ton lot was let at Phoenix, Ariz.; two 300-ton jobs were awarded in Chicago and several others down to 100 tons are noted. Inquiries pending give a bright outlook for spring. Prices are firm in all districts.

REINFORCING BAR PRICES, PAGE 411

Chicago, Feb. 5.—Outstanding in reinforcing bar work placed is the 1500-ton lot for the Northwestern Bank building, Minneapolis. Several other jobs placed take 160 to 300 tons. Weather conditions still retard building, but the outlook is bright for the next 60 days. Rail steel fabricators quote 2.05c for lots of 100 tons and over, and billet bar fabricators quote a minimum of 2.35c.

Pittsburgh, Feb. 5.—Concrete reinforcing bars are quiet, although demand is seasonally active. Awards and inquiries are confined to small jobs. Specifications received by mills in January were larger in some cases than a year ago. The market continues 2.25c, Pittsburgh, for cut lengths and 2.00c for stock lengths.

Buffalo, Feb. 5.—Spot demand for reinforcing bars is slow. Inquiry, however, is improving. New lots sought for spring delivery include 200 tons for a Buffalo hotel and 100 tons for a Niagara Falls garage. Small lots are being delivered by truck at 2.615c, Buffalo district.

Detroit, Feb. 5.—Many jobs requiring concrete bars in lots of 50 to 1500 tons are being revived or projected for early spring letting. The largest job let recently involves 400 tons for a Packard Motor Car Co. building, to Truscon Steel Co., which also received several smaller lettings.

Awards Compared

	Tons
Awards this week	5,940
Awards last week	3,500
Awards two weeks ago	12,696
Awards this week in 1928	6,420
Average weekly awards, Jan.	7,288
Average weekly awards, 1928	6,189
Average weekly awards, 1929	7,063
Total awards to date, 1928	32,260
Total awards to date, 1929	42,380

CONTRACTS PLACED

1500 tons, Northwestern Bank building, Minneapolis, to Calumet Steel Co.
800 tons, department of commerce, Washington, to Baker Steel Co., through Construction Engineering Co., Baltimore and Washington; 12,000 concrete piles to Raymond Concrete Pile Co.
450 tons, building, Brooklyn Ash Removal Co., Brooklyn, N. Y., to Igoe Bros., through George Colon Construction Co.
400 tons, Stewart Mountain dam, Phoenix, Ariz., to Allison Steel Mfg. Co.
400 tons, building, Packard Motor Co., Detroit, to Truscon Steel Co.
300 tons, apartment at Hazel and Wilson avenues, Chicago, to Barton Steel Co., through H. Janisch & Co., contractors.
300 tons, apartment building, Chicago, to Inland Steel Co.
225 tons, apartment, Pellissier square, Los Angeles, to unstated interest.
200 tons, addition, Pierpoint Motor Co., Pittsburgh, to Metzger-Richardson Co.
200 tons, building, Seacoast National bank, Asbury Park, N. J., to Jones & Laughlin Steel Corp., through Turner Construction Co.
160 tons, Mercantile building, Chicago, to Concrete Steel Co.
150 ton, warehouse, Hyperion street, Los Angeles, to unstated interest.
150 tons, plant addition, Wagner Electric Co., St. Louis, to Laclede Steel Co.
105 tons, schools, Warren and McKeesport, Pa., to Concrete Steel Co.
100 tons, apartment house, Delmar and Deballivere avenues, St. Louis, to Laclede Steel Co.
100 tons, miscellaneous work, small jobs in and around Detroit, to McRae Steel Co.
100 tons heat treating plant, American Gear Mfg. Co., Detroit, to Truscon Steel Co.
100 tons, building, Michigan Smelting & Refining Co., Detroit, to Gabriel Steel Co.
100 tons, naval airport, Grosse Ile, Mich., to Truscon Steel Co., through Verner, Wilhelm & Shreve.
100 tons, state highway bridge, Ridgefield Park, N. J., to Faitout Iron & Steel Co.

CONTRACTS PENDING

500 tons, terminal, warehouse and dock, Grand Trunk railroad, Muskegon, Mich.
200 tons, hotel, Buffalo, Lasser-Preyer Corp., Buffalo, builder.
150 tons, plant addition, Gulf Refining Co., Philadelphia. Construction contract to Raymond Concrete Piling Co.
100 tons, building, Concrete Unit Mfg. Co., Lynch road and Grand Trunk railroad, Detroit; bids in.
100 tons, public garage, Niagara Falls, N. Y. Motoramp Garage Co. of America, Buffalo, builder.

Furnace, Oven Group to Meet at Pittsburgh

Eastern States Blast Furnace and Coke Oven association will hold its midwinter meeting at the William Penn hotel, Pittsburgh, Feb. 15. The blast furnace meeting will be held at 10 a.m. under the chairmanship of L. E. Riddle, general superintendent, Isabella Furnaces, Carnegie Steel Co., Etna, Pa.

A separate meeting for the discussion of coke plant problems will be held at the same time with A. H.

Harris Jr., superintendent coke ovens, Bethlehem Steel Co., Lackawanna, N. Y., presiding. Following luncheon both divisions will engage in a joint discussion of blast furnace and coke oven problems. R. J. Rysor, general manager, Jones & Laughlin Steel Corp., Pittsburgh, will preside at this session. A dinner is scheduled for 6:30 p.m. followed by an address entitled "The Fuels of the Future" by M. R. Campbell, principal geologist, department of the interior, Washington.

Production Indexes Rise

Washington, Feb. 5.—December iron and steel production index was 122, compared with 119 for November and 93 for December, 1927, taking 1923-1925 as 100, according to the department of commerce.

Production for nonferrous metals for December is given as 128, compared with 126 for November and 111 for December, 1927. Automobile production for December was 97, compared with 90 for November and 53 for December, 1927.

Iron and steel unfilled orders for December were 83, compared with 76 for November and 85 for December, 1927.

Hadly Leaves Alan Wood

Philadelphia, Feb. 5.—Charles O. Hadly has resigned as vice president in charge of sales of the Alan Wood Iron & Steel Co., which is changing its name to the Alan Wood Co., following purchase by the Koppers Co. and W. J. Rainey Inc. Willard S. Haring will continue as general manager of sales. Alan D. Wood has resigned as vice president and G. A. Hecksher as manager of the blast furnace department. James P. Platt has been made purchasing agent.

To Split Nicholson Stock

Directors of the Nicholson File Co., Providence, R. I., in a letter to stockholders have recommended that the company's capital structure be changed by a stock-split of the present capital stock on a six-for-one basis. It is suggested that the 100,000 shares of $100 par value, now outstanding, be replaced by 600,000 shares of no par value.

Dominion Profits Record

Toronto, Ont., Feb. 5.—The Dominion Radiator & Boiler Co. Ltd. set a new high earning record in 1928 when its net profits reached $369,030. The balance sheet as of Dec. 31, 1928, showed current assets of $1,479,586 and liabilities of $66,089. The Toronto plant of the company is being remodeled.

Kalman May Buy Baker

Philadelphia, Feb. 5.—Kalman Steel Co., Chicago, is negotiating for purchase of the Baker Steel Co., Philadelphia.

Rails, Cars

Western Mills Benefit Most By Recent Car Lettings—More Than 5550 This Month

WESTERN roads continue to occupy center stage in car lettings. This benefits western steel mills since they will furnish practically all of the required steel. January, with 13,196 cars by domestic roads, is the best month since December, 1927. With 5554 cars distributed this week, February starts out to better that record. Rail demands are slowing up.

RAILROAD TRACK PRICES, PAGE 412

New York, Feb. 5.—Incomplete returns show the placing of 13,196 freight cars by domestic lines in January. This is the largest monthly total since December, 1927, when 14,710 cars were placed. Meanwhile, more than 19,000 cars are being actively figured. Leading awards of the past week include 2298 for Rock Island and 500 bodies for Seaboard Air line.

Chicago, Feb. 5.—Of the 12,000 or more cars on active inquiry, to take about 300,000 tons of finished steel, about 85 per cent will be placed in the West. Santa Fe has distributed orders for 4375, leaving only 200 flat cars to be bought. Northern Pacific wants 500 70-ton gondolas. The Milwaukee road takes bids Feb. 16 on 4150 cars, while Rock Island awarded 2527 cars, 229 of which were noted last week. It is understood it will not buy stock and tank cars at least at this time. Chicago & North Western has awarded 1500 cars and has 500 gondolas outstanding.

Car equipment shops order finished steel from the mills at the rate of about 15,000 tons a week, as against about 10,000 tons late last month. The rate is growing.

Rail mill operations are steady at about 80 per cent. Chicago & Eastern Illinois ordered about 6000 tons of rails, of which about 4000 tons went to Illinois Steel Co. The remainder went to Inland Steel Co. Track fastenings orders totaled 5000 to 7000 tons. About that same amount is on inquiry.

Rail mills report that primary rail buying has been completed, except for occasional small lots. The outlook is good for heavy secondary purchases.

Pittsburgh, Feb. 5.—Specifications for track fastenings are fairly well maintained, most carriers having closed on requirements to accompany rail orders. Light rail demand is steady, January tonnage showing little change from that of the preceding month.

Cleveland, Feb. 5.—Nickel Plate railroad has bought 1610 kegs of track bolts, with option on 710 kegs by May 1; 5200 kegs of spikes, with option on 2500 by May 1; and splice bars and tie plates for its recent order for 22,800 tons of rails.

Chesapeake & Ohio has ordered 125 steel-frame caboose cars from the Hocking Valley shops at Logan, O.

Birmingham, Ala., Feb. 5.—Southern Pacific railroad has awarded 10,000 tons of 130-pound rails to the Tennessee Coal, Iron & Railroad Co., Birmingham. The rails are to be laid in California and Oregon.

CAR ORDERS PLACED

Atchison, Topeka & Santa Fe, 21 gasoline-electric rail motors cars; to Pullman Car & Mfg. Corp.; power units to be supplied by Electro-Motive Co.

Chicago & North Western, 2000 freight cars, including 500 automobile, to General American Tank Car Co.; 500 each gondolas and automobile cars to Pullman Car & Mfg. Corp.; 500 gondolas to Standard Steel Car Co.

Chicago, Rock Island & Pacific, 2298 cars, including 1000 box to American Car & Foundry Co., 1000 70-ton composite gondolas to Pressed Steel Car Co., and 250 ballast, to Standard Steel Car Co. These are in addition to 229 cars distributed last week.

Chesapeake & Ohio, 125 caboose cars, to the Hocking Valley shops at Logan, O.

Elgin & Joliet, 75 flats to own shops.

Erie, five flat cars, to Standard Steel Car Co.

Harwick Coal Co., 50 mine cars to Hockensmith Wheel & Mine Car Co.

Louisville & Nashville, 12 miscellaneous coaches, comprising four passenger, four combination passenger and smoking cars and four combination passenger and baggage cars, to American Car & Foundry Co.

Seaboard Air Line, 500 box car bodies to Richmond Car Works.

Tidewater Oil Co., 118 tank cars, to American Car & Foundry Co.

Western Pacific, 350, including 250 automobile cars, to Pullman Car & Mfg. Corp.; 50 tank cars to General American Tank Car Co., and 50 flats to Pacific Car & Foundry Co.

LOCOMOTIVE ORDERS PLACED

Chesapeake & Ohio, 15 switching locomotives to Baldwin Locomotive Works.

CAR ORDERS PENDING

Chesapeake & Ohio, 12 express cars for its own use and three baggage and mail cars for Hocking Valley, contemplated.

Hocking Valley, 107 flat cars.

Northern Pacific, 500 70-ton gondolas.

LOCOMOTIVE ORDERS PENDING

American Rolling Mill Co., two oil-electric locomotives.

Pere Marquette, 10 switch engines and five Mikado type freight engines.

O. Kuhler, who has specialized in drawings of industrial scenes, has moved into a new studio at 426 Harwood building, Scarsdale, N. Y. R. W. Deimel will act as secretary.

The Market Section

Wire

Assaults Against Price Appear Fruitless—Specifying for Spring Selling to Begin Soon

WEATHER is having some effect in the West, delaying buying of wire and wire products. Jobbers, who did not stock heavily in the fall and winter, are specifying to build up stocks. Consumers who are not well covered have sought concessions in price but seem to have failed. First quarter contracting seems to have been done fairly completely.

WIRE PRICES, PAGE 412

Chicago, Feb. 5.—Cold in the West deters buying of wire products, although jobbers and dealers are ordering material to build up stocks against expected spring demand. Manufacturers' wire continues active. Most larger buyers have completed contracting for first quarter. Operations are 65 per cent. The price to large jobbers is fairly firm at 2.55c, Chicago or western mills, for bright plain wire and $2.70 for wire nails.

Worcester, Mass., Feb. 5.—Specifications against first quarter orders have not been large, production still being heavy against old contracts. Backlogs as a result are being reduced. Business placed for the first quarter has been at new prices which are firm on the basis of 2.75c, Worcester, for plain wire to dealers. Buying is well spread, specialty wire products and manufacturers' wire leading.

Buffalo, Feb. 5.—Spring demand for reinforcing material for road construction promises to be large. There is a brisk inquiry for tonnage for spring delivery. Buffalo producers are quoting about $72 a ton on welded mesh.

Pittsburgh, Feb. 5.—Wire producers practically have completed shipments against fourth quarter contracts. Since most consuming lines are active, sellers look for early resumption of specifying. Jobbers were not active in forward buying during December, some preferring to eliminate carrying charges rather than take advantage of the lower price, and stocks are moderate. Manufacturers' wire is moving well and total January tonnage was seasonally high. Reports of concessions are lacking, with first quarter contracting practically complete at 2.50c to 2.60c for plain wire, and $2.65 to $2.75 for wire nails.

Cleveland, Feb. 5.—Wire products buyers who are not covered by contracts continue to seek concessions, without success. Additional carload orders were placed last week at $2 higher, including some single carloads of cement coated nails. Wire demand is heavy on the part of automobile spring makers.

Detroit, Feb. 5.—Jobbers in wire products were well covered before the price advance and open market activity at the higher figures is restricted to small lot sales. Wire mills will hardly profit by the increase until second quarter.

The Columbian Steel Tank Co., Kansas City, Mo., is planning trade expansion activity which will double its output in 1929.

Memorial Library Honors Late B. F. Jones

Pittsburgh, Feb. 5.—The B. F. Jones memorial library, Aliquippa, Pa., was dedicated Feb. 1 with appropriate ceremonies, which included the unveiling of a statue of Mr. Jones, the founder of the present Jones & Laughlin Steel Corp. The library is the gift of Mrs. Elisabeth M. Horne, daughter of Mr. Jones, in memory of her father and for the use of the public of Aliquippa, where the largest Jones & Laughlin works is situated.

Addresses were made by Willis L. King, vice president and director of the Jones & Laughlin and a lifelong friend and associate of the late B. F. Jones; Mrs. Horne; D. D. Evans, director and general counsel of Jones & Laughlin; and T. M. Girdler, president of the company.

Cold Finished Steel

Demand Continues Steady and At High Rate

COLD FINISHED PRICES, PAGE 411

Pittsburgh, Feb. 5.—Steady demand characterizes cold finished steel. January was active and specifications from most consuming lines are holding to that pace or better. Buying by automotive parts makers is slightly ahead of the rate of motor car builders. The market is firm at 2.20c, Pittsburgh.

Wage increases, effective Feb. 1, have been granted to 36,000 shop employes of the Pennsylvania railroad. For most men the rise is 4 cents per hour, entailing $3,500,000 annually.

Strip

Heavy Backlogs Delay Deliveries —Consumers Seeking Earlier Material—Prices Firm

CONSISTENT and steady buying of steel strip has resulted in mills accumulating backlogs to an extent that best efforts do not avail to give deliveries as users request. On some sizes seven weeks is needed. Automotive requirements form the backbone of the tonnage. Prices are well maintained. Some tonnage on the lower price remains to be shipped.

STRIP PRICES, PAGE 412

Pittsburgh, Feb. 5.—Heavy backlogs and extended delivery are prompting buyers of strip steel to shop around to obtain desired shipment. Practically all mills are well filled, however, with delivery extending as far as seven weeks on cold material and five weeks on some sizes of hot strip. Some sizes of both material, however, may be obtained on shorter notice. The automobile industry is specifying more freely, although demand generally is well distributed. Prices are well maintained at 1.90c, Pittsburgh minimum, for hot strip to 6 inches, and 1.80c for 6 1/16 to 24-inch. Mills now are quoting 2.95c for cold strip, although business still is on the books at $2 a ton less, booked during the final quarter of 1928.

Cleveland, Feb. 5.—Automotive strip steel needs are increasing. Other consuming lines appear to be taking at least normal quotas. While not all cold strip manufacturers have inaugurated the $2 higher price, they are expected to advance this week. Books have not yet been opened for second quarter. Narrow hot strips at 1.90c, Pittsburgh, seem to remain in popular demand, with fairly large tonnages of wider sizes at 1.80c being specified as well.

Chicago, Feb. 5.—Marked increase in specifications for cold-rolled strip steel has been evident since about Jan. 15 when automotive business became more active. The $2 advance in cold strip quotations places the Chicago price on a straight 2.95c, Pittsburgh-Cleveland base, it is announced by makers.

Philadelphia, Feb. 5.—Strip demand continues brisk, though not all makers are satisfied with their tonnage. Some recent irregularities in cold strip have not disappeared, and although the current market is 2.85c to 2.95c, Pittsburgh, business has been booked in the past week at considerably less. Hot strip may be quoted at 1.80c to 1.90c, base, Pittsburgh, and 1.90c to 2.00c, Pittsburgh, with 6 inches the dividing line.

Nonferrous Metals

Copper Meets Two Quick Rises with Heavy Buying—All Metal Shipments Large—Zinc Has Drop and Recovers

Prices of the Week, Cents a Pound

	Copper			Straits Tin							
	Electro delivered	Lake delivered	Casting refinery	New York Spot	New York Futures	Lead New York	Lead East St. Louis	Zinc St. Louis	98-99% Aluminum	Spot Antimony	Ingot Nickel
Jan. 30	17.00	17.07½	16.75	48.50	48.50	6.65	6.50	6.35	23.90	9.75	35.00
Jan. 31	17.00	17.07½	16.75	48.56¼	48.56½	6.65	6.50	6.35	23.90	9.62½	35.00
Feb. 1	17.12½	17.20	16.87½	48.75	48.75	6.65	6.50	6.35	23.90	9.62½	35.00
Feb. 4	17.25	17.32½	17.00	49.50	49.50	6.65	6.50	6.35	23.90	9.62½	35.00
Feb. 5	17.50	17.57½	17.25	50.37½	50.37½	6.65	6.50	6.35	23.90	9.68¾	35.00

NEW YORK, Feb. 5.—Two quick rises in the price of copper, accompanied by large buying, were features of the nonferrous metal market in the past week. Tin also became firmer and there was somewhat of an improvement in sentiment on the strength of the January statistics. Other metals were firm but unchanged.

Shipments of all metals and metal products continue extremely large. Not only are current orders of large size, but the outlook is bright for a number of months ahead. The backlog of orders for vigin copper and copper mill products is the largest the industry has had in several years. Brass and copper products have been marked up a total of ½-cent to ⅝-cent in two advances because of higher prices for copper.

Copper—Export buying became heavy about a week ago, and that was the signal for increased domestic buying. The users in this country feared that the export sales together with the large business already on the books would send the price up. The first rise of ¼-cent to 17.25c, Connecticut, occurred on Feb. 1. The second price advance to 17.50c, Connecticut, took place today. The usual differentials for Middle Western delivery and other positions prevailed in both instances. Large business also was done at the new prices and it looked as if the uptrend would continue. Miners' wages have been advanced. Some of the domestic buying and most of the export buying was for April shipment, while much of the domestic business was for May. There was also a little buying for earlier positions. Shipments appear to be going forward as rapidly as the refineries are able to produce.

Zinc—Prime western continues moderately active, with the price unchanged at 6.35c, East St. Louis. The ore market also is unchanged at $40 a ton. There is some talk that the mining industry will be in a stronger position as a result of the new sales arrangement, and that, therefore, a rise is likely soon.

Tin—Users have bought moderately in the past week, a good amount for nearby positions, and some metal for delivery several months ahead. The price dropped almost to 48 cents and then recovered to above 50 cents. Domestic deliveries in January were 8795 long tons, 2400 tons larger than the average last year. Some men in the trade think that consumption must be close to this figure, but others think that this figure substantially exaggerates consumption on account of the delivery of some tin to private warehouses. Even with actual deliveries of a little over 7000 tons, more than average consumption would be indicated. World visible supply was cut 326 tons, the first cut since last June, but the total of 24,237 tons remains the largest in several years except during the previous month.

Lead—The market here is in a very strong position, but the threat of imports on account of the relatively low London price keeps the market here from going up. In the past few days London has shown more strength, so there is possibility of action in this market.

Aluminum—Orders and shipments are going at high rates. The outlook for continued good business also is bright. Prices are unchanged and firm.

Nickel—The market is in a very strong position, with excellent consumption, but prices are unchanged.—*Daily Metal Trade.*

Mill Products

Base prices cents per pound f.o.b. mill, except where otherwise specified

SHEETS	
Yellow brass (high)	22.00
Copper, hot rolled	26.75
Lead, full sheets (cut ¼c more)	9.50
Zinc sheet (100-pound base)	$9.75
Zinc strip (100-pound base)	$8.75
Aluminum, flat sheets, up to 10 gage, 3" to 72" wide	31.30
SEAMLESS TUBE	
Yellow brass (high)	26.87½
Copper	28.12½
RODS	
Yellow brass (high, full turnings)	19.75
Naval brass	21.75
WIRE	
Copper, car lots	19.12½
Yellow brass (high)	22.00

Old Metals

Dealers' buying prices, cents per pound

HEAVY RED BRASS	
New York	11.00 to 11.25
Chicago	11.75 to 12.00
Cleveland	12.00 to 12.50
HEAVY YELLOW BRASS	
Cleveland	8.50 to 9.00
ZINC	
New York	3.50
Cleveland	3.00 to 3.50
HEAVY COPPER AND WIRE	
New York	14.50 to 14.75
Boston	13.75 to 14.00
Chicago	14.00 to 14.25
Cleveland	14.00 to 14.50
RED BRASS BORINGS	
New York	10.50 to 10.75
YELLOW BRASS TUBING	
Cleveland	8.75 to 9.00
LIGHT COPPER	
New York	12.50 to 12.75
Chicago	12.25 to 12.50
Cleveland	12.00 to 12.50
LIGHT BRASS	
Boston	6.87½ to 7.12½
Chicago	8.50 to 8.75
Cleveland	6.50 to 7.00
ALUMINUM	
Clippings, Cleveland	18.00 to 18.50
Borings, Cleveland	9.00 to 9.50
Cast, Cleveland	12.75 to 13.00
Cast, Boston	10.50 to 11.00

Secondary Metals

Remelt aluminum No. 12	16.50 to 17.00
Brass ingot, 85-5-5-5	15.75 to 16.00

Coke By-Products

Toluol Is Wanted, But Sulphate of Ammonia Is Lagging

New York, Feb. 5.—Light oil distillates are in good demand, particularly toluol, on which lacquer interests are closing in substantial volume. Commercial xylol and solvent naphtha are also influenced by this lacquer demand, as supplies of toluol are scarce.

The drug trade continues active in the purchase of ball and flake naphthalene, with flakes steady at 5.50c to 6.50c, works, and balls at 6.50c to 7.50c.

Sluggishness still prevails in sulphate of ammonia, there being little buying by either domestic or foreign consumers. Such tonnage as is now moving is chiefly on contracts placed last summer.

Coke Oven By-Products

Per Gallon at Producers' Plant in Tank Lots

	Spot
Pure benzol	$0.23
90 per cent benzol	0.23
Toluol (nominal)	0.40
Solvent naphtha	0.30
Commercial xylol	0.30
Per Pound at Producers' Plants in 250-Pound Drums	
Phenol	0.17
Per Pound at Producers' Plants	
Naphthalene flakes	0.05½ to 0.06½
Naphthalene balls	0.06½ to 0.07½
Per 100 Pounds Delivered	
Sulphate of ammonia	$2.30

Warehouse

Warehouse Sales Hold Steady Pace—Demand Is Diversified—Delayed Mill Deliveries Send Business to Jobbers

STEADY purchases from jobbers' stocks of practically everything thus handled, still characterizes the warehouse market. This business is aided by increasingly deferred deliveries by the mills, particularly on sheets. A cold strip price advance in harmony with recent mill increase is expected.

New York—While cold strip steel out of warehouse may advance, in view of the recent mill increase, no such action has yet been put into effect. The price situation in general is unchanged, although some jobbers are revising their printed lists on structural rivets, lag screws, machine bolts and tank rivets to conform with what is more truly the going market. The market on structural rivets is 4.50c, on large lag screws list less 50 and 10, tank rivets list less 60, large machine bolts list less 50 and 10 and small machine bolts 60. The new month is starting in a fairly brisk manner.

Philadelphia—Jobbers report a continued good demand with prices firm and unchanged. A development of the past week is the adoption by Trenton, N. J., jobbers of same prices plus same quantity differentials for Trenton delivery that local jobbers are quoting here.

Buffalo—Large sales of iron and steel continue, although this season usually is one of the dullest of the year. Inability of mills to deliver promptly is an aid to warehouse business. Prices are holding steady and distribution is good.

Pittsburgh—January proved an active month for warehouses. Total tonnage for some jobbers set a new high mark. One seller reports January the best month in more than a year. Some products are seasonally slow but demand generally is well scattered both as to material and buyers.

Cleveland—Sheet sales from warehouse stocks are on the upgrade. Other products are active, moving out at about the same rate as in January.

Detroit—Warehouse orders since the first of the year have shown a steady trend toward improvement. January tonnage was ahead of of last January. Bars, sheets, small shapes and concrete bars are particularly active.

Cincinnati—January business out of warehouse was good and early February sales forecast a satisfactory market for this month. Prices remain firm.

St. Louis—Recent sales by iron and steel warehouses run slightly above the seasonal average on the whole, although all jobber interests are not giving uniformly optimistic accounts of their business.

Warehouse Quotations in Cents Per Pound at Leading Market Centers

STEEL BARS

Baltimore	3.10c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.00c
Ft. Worth	3.75c
Houston	3.00c
Los Angeles	3.30c
New York†††‡	3.25c
Philadelphia*	2.80c
Pittsburgh	2.90c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.15c
St. Paul	3.25c
Tulsa	3.75c to 4.04c

IRON BARS

Baltimore	3.10c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.00c
Ft. Worth	3.75c
New York††	2.80c to 3.24c
Philadelphia*	2.80c
St. Louis	3.15c
Tulsa	3.75c to 4.04c

REINFORCING BARS

Baltimore	3.31c
Boston	3.265c to 3.50c
Buffalo	2.75c
Cincinnati	3.15c
Cleveland	2.25c to 3.00c
Detroit	2.30c to 3.00c
Ft. Worth	3.50c
Houston	3.00c
Los Angeles cl.	2.65c
Los Angeles lcl.	3.00c
New York	2.85c to 3.25c
Philadelphia	2.75c to 3.10c
Pittsburgh	2.75c to 3.175c
San Francisco cl.	2.00c
San Francisco lcl.	2.25c
Seattle	3.00c
St. Louis	3.15c
Tulsa	3.75c to 4.00c
Youngstown	2.30c to 2.60c

STRUCTURAL SHAPES

Baltimore	3.10c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.00c
Detroit	3.10c
Ft. Worth	4.00c
Houston	3.25c
Los Angeles	3.30c
New York†††‡	3.25c to 3.30c
Philadelphia*	2.70c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.14c

PLATES

Baltimore	3.10c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-in. and thicker	3.00c
Cleve., 3/16-in.	3.20c
Detroit	3.10c
Detroit, 3/16-in.	3.30c
Ft. Worth	4.00c
Houston	3.00c
Los Angeles	3.30c
New York†‡	3.30c
Philadelphia*	2.70c
Phila., 3/16-in.*‡	2.90c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.14c

NO. 10 BLUE ANNEALED

Baltimore	3.45c
Boston, 3/16-in.	3.915c
Buffalo	3.50c
Chicago	3.35c
Cincinnati	3.45c
Cleveland	3.25c
Detroit	3.35c
Ft. Worth	4.50c
Houston	3.90c
Los Angeles	4.00c
New York†‡	3.90c
Portland	3.75c
Philadelphia*†	3.15c
Pittsburgh**	3.20c
San Farncisco	3.80c
Seattle	4.00c
St. Louis	3.45c
St. Paul	3.75c
Tulsa	4.20c to 4.34c

NO. 24 BLACK SHEETS

Baltimore	3.25c to 4.00c
Boston	4.85c
Buffalo	4.20c
Chicago	3.80c
Cincinnati	3.90c
Cleveland	3.60c
Detroit	3.95c
Ft. Worth	4.70c
Los Angeles	4.90c
New York	3.90c to 4.00c
Philadelphia*†	4.00c
Pittsburgh**	3.80c
Portland	4.90c
San Francisco	4.90c
Seattle	5.00c
St. Louis	4.10c
St. Paul	3.95c
Tulsa	4.34c

NO. 24 GALVANIZED SHEETS

Baltimore	4.30c to 5.00c
Boston	5.60c
Buffalo	4.70c to 4.85c
Chicago	4.65c
Cincinnati	4.75c
Cleveland	4.45c
Detroit	4.75c
Ft. Worth	5.50c
Houston	5.30c
Los Angeles	5.30c
New York	4.60c to 4.75c
Philadelphia*†	4.75c
Pittsburgh**	4.55c
Portland	5.50c
San Francisco	5.30c
Seattle	5.50c
St. Louis	4.95c
St. Paul	4.90c
Tulsa	5.10c to 5.35c

BANDS

Baltimore	3.85c
Boston	4.015c to 5.00c
Buffalo	3.65c
Chicago	3.20c
Cincinnati	3.90c
Cleveland	3.25c to 3.65c
Detroit, ⅜-in. and lighter	3.30c
Ft. Worth	4.25c
Houston	3.65c
Los Angeles	4.15c
New York†‡	3.75c
Philadelphia*	3.15c
Pittsburgh	3.25c
Portland	4.00c
San Francisco	3.75c
Seattle	4.00c
St. Paul	3.50c
Tulsa	4.50c to 4.69c

HOOPS

Baltimore	4.00c
Boston	5.50c to 6.00c
Buffalo	4.05c
Chicago	3.75c
Cincinnati	4.05c
Cleveland	3.25c to 3.65c
Detroit, No. 14 and lighter	3.80c
New York†‡	4.25c
Philadelphia*	3.40c
Pittsburgh	4.25c
Seattle	5.00c
St. Paul	4.00c

COLD FINISHED STEEL

	Rounds, hexagons,	Flats, squares
Baltimore (c)	3.35c	3.85c
Boston	3.55c	4.05c
Buffalo	3.95c	4.45c
Chicago	3.60c	4.10c
Cincinnati	3.85c	4.35c
Cleveland	3.65c	4.15c
Detroit	3.85c	4.35c
Los Angeles (a)	4.50c	.....
New York	3.50c	4.00c
Philadelphia*	3.45c	3.95c
Pittsburgh	3.60c	4.10c
Portland (a)	4.50c	.....
San Fran. (a)	4.25c	.....
Seattle (a)	5.00c	.....
St. Paul (a)	3.85c	.....
Tulsa	4.64c	5.14c

(a) Rounds only.

COLD ROLLED STRIP

Boston, 0.100-inch, 500 pound lots	5.30c
Buffalo	5.85c
Chicago (b)	6.10c
Cincinnati	7.15c
Cleveland (b)	5.95c
Detroit	5.80c
New York	5.15c
Philadelphia (c)	5.00c

(b) Net base, straightening, cutting, boxing 1 ton or more.
(c) Plus mill, size and quantity extras.

SWEDISH IRON AND STEEL

New York duty paid

Hollow drill steel	13.00c
Iron bars, rounds	6.10c
Iron bars, flats and squares	6.50c

*Plus quantity differentials. ‡‡Minus quantity differentials. ††Domestic bars. **25 or more sheets. *†50 or more bundles.

Pacific Coast

Steel Buying Holds Last Year's Volume—Pipe Is Active—Bar Price Higher

COLD weather and snow are limiting activities in Washington and Oregon, with a slow market resulting, though considerable work is in prospect. Increased prices in San Francisco territory on reinforcing bars have removed an inequitable situation at Portland and steadied the market. The Southern Pacific railroad has placed a fair rail tonnage.

San Francisco, Feb. 2.—(*By Air Mail*)—Business booked during January is considerably larger than the tonnage for the corresponding month last year. Although concrete bar lettings in January, 1928, totaled 13,779 tons or 6000 tons more than in January, 1929, one project alone last year took 11,000 tons. Cast iron pipe bookings are 4500 tons ahead of last year's total and plates 31,000 tons, while structurals are about even.

Important awards of the week include close to 30,000 tons of rails for the Southern Pacific Co., 4500 tons of plates for tank and pipe lines and 1515 tons of cast iron pipe for Los Angeles.

Pig Iron and Coke

Demand for foundry pig iron and coke is quiet, sales and inquiries being limited to relative small lots. No change in quotations is noted.

Coast Pig Iron Prices

Utah basic	$25.00 to 26.00
Utah foundry	25.00 to 26.00
*German	24.25
*Indian	24.00 to 25.00

*C.i.f. duty paid.

Bars, Plates and Shapes

The largest concrete bar award involved 400 tons for the Stewart Mountain dam near Phoenx, Ariz., placed with the Allison Steel Mfg. Co. Out-of-stock prices on reinforcing steel bars in both the Los Angeles and San Francisco districts now appear firm at 2.30c, base, on carload lots with 2.60c applying on smaller tonnages.

The Lacy Mfg. Co. took 656 tons of 30-inch riveted pipe for Los Angeles and the Western Pipe & Steel Co. booked 3800 tons as follows: 3000 tons for two 118,000 and four 134,000-barrel tanks for the Shell Oil Co. at Martinez, 600 tons for a pipe line at Monterey and 200 tons for a pipe line at San Rafael, Calif. Pending business exceeds 6000 tons. Bids open Feb. 11 on 1512 tons for a 60-inch line for Denver. While 2.25c, c.i.f., applies on practically all business it is reported that the larger inquiries are bringing forth a price slightly under this figure.

Fabricators in the bay district this week evidenced considerable interest in several meetings addressed by Charles F. Abbott, executive director, and Lee H. Miller, chief engineer, American Institute of Steel Construction. Bookings of larger lots were not numerous, the aggregate being 1110 tons. McClintic-Marshall Co. took 630 tons for a hotel in San Francisco and 165 tons for a hotel in Long Beach, Calif. The price on plain material remains firm and unchanged at 2.35c, c.i.f.

Other Finished Material

Demand for cast iron pipe has improved materially and awards this week aggregated 2781 tons. Among the larger lettings were 1515 tons for Los Angeles, 909 tons and 606 tons, respectively, going to the Pacific States Cast Iron Pipe Co. and the American Cast Iron Pipe Co. Pending business exceeds 8000 tons and includes 2242 tons for the Southern Pacific Co., San Francisco, 1103 tons for Oakland and 1350 tons for Los Angeles, which on an inquiry for 590 tons of 6-inch standard pipe, decided to use cast iron pipe.

The Southern Pacific Co. has placed its annual requirements for rails with three makers. Involved in this inquiry were 20,808 tons of 110-pound and 9162 tons of 130-pound standard tee rails. Feb. 13 the Los Angeles harbor commission will open bids on 415 tons of 90-pound tee rails, 17,200 tie plates and 107 tons of track spikes.

Seattle Buying Slow

Seattle Jan. 30.—The rise by California mills in reinforcing bars has strengthened the market here. California prices are now said to be on a par with the market in the Northwest, 2.20c. For some time California has been quoting about 1.80c on this item and cut price material has been invading Portland territory. Local mills are pleased that California has decided to work on the same level as the Northwest. Consequently, the situation here is firm and steady.

Awards of tonnages this week were confined to structurals, about 1000 tons having been taken by local plants. Much work is pending and is expected to be released shortly.

Bars, Plates and Shapes

Local steel mills report unchanged operations. Awards for reinforcing materials this week have consisted entirely of lots under 100 tons. Mills have quoted on a large number of construction jobs and within a short time it is expected that several large contracts will be awarded. Merchant bars are unchanged at 2.35c and concrete bars at 2.20c.

Mill prices of plates are steady at 2.25c although there is little inquiry for large tonnages. Jobbing houses report a fair turnover for tank and boiler work.

Wallace Bridge & Structural Steel Co. this week booked nearly 1000 tons in the following Seattle jobs; 750 tons for St. Mark's Cathedral; 160 tons for the addition to the Rainier club; 50 tons for the Shopping Tower. Lake Washington Shipyards has been awarded the contract for constructing a 188-foot steel motorship for the W. B. Foshay Co. This contract is expected to require about 250 tons of plates and shapes.

Finished Materials

Wholesale jobbers report slightly increased activity although buying has been restricted by severe weather retarding outdoor work. Spring buying is expected soon and a large turnover is predicted. Jobbing price lists are unchanged, Portland houses reported more successful in maintaining price levels.

A 160-ton Mikado locomotive from the plant of the Baldwin Locomotive Works is soon to arrive here from Eddystone, Pa., with 150 tons of tie plates and 30 tons of switch parts and bolts for the Alaska railroad. Sumner Iron Works, Everett, has booked three large contracts, sawmill and paper mill machinery for plants on Puget Sound, Knappton, Oreg., and Port Mellon, B. C., St. Paul & Tacoma Lumber Co. has received a large locomotive crane and other heavy equipment for its logging camp at Nooksack.

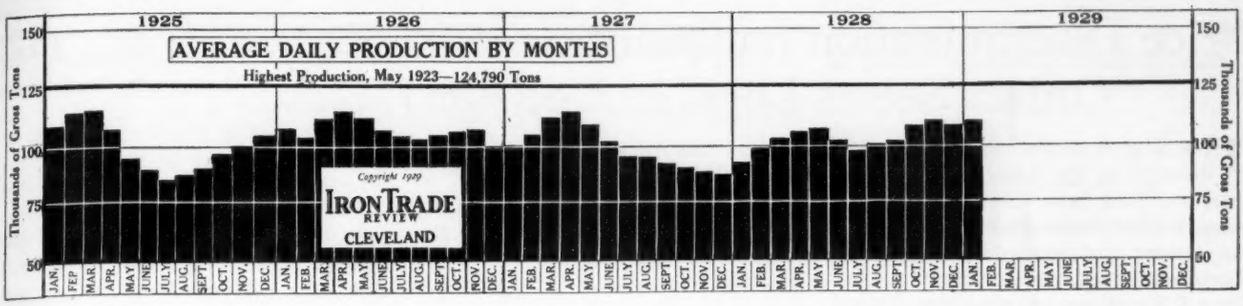
Toledo, Wash., has awarded a small contract for cast iron pipe and accessories to the Pacific Water Works Supply Co., representing French makers. Most of this job went creosoted wood pipe. An unstated tonnage of small size galvanized water pipe for Olympia is reported to have been booked by a Seattle wholesale house.

Old Materials

There is no change in the market, steel scrap being quoted at $10 and $11 gross at local mills with higher prices prevailing for select export materials. Cast iron scrap averages about $14 a net ton and is reported scarce.

Consider Canadian Tariff

Toronto, Ont., Feb. 5.—Hearing of the application of the Algoma Steel Corp. and the Dominion Iron & Steel Co. for an increase in duties on steel was resumed by the advisory tariff board at Ottawa, Jan. 30. The application was opposed by the secondary steel using companies, including the Lysaght Dominion Steel Metal Corp., Ford Motor Co., Dominion Foundries & Steel Ltd., Canadian Tube & Steel Co., Hayes Wheel & Forgings Ltd., and Guelph Spring & Axle Co.



Pig Iron Output Is January Peak

COKE pig iron production in January set an alltime high for that month when the daily rate soared to 110,736 tons, according to the IRON TRADE REVIEW compilation. This paled the previous January peak of 108,781 tons in 1925 by a fair margin. Over the 92,113 tons of January one year ago it is a gain of over 20 per cent. In December the daily rate was 108,702 tons.

Nineteen twenty-nine thus opens with a rate of production in excess of any month of 1928. The January total of 3,432,832 tons also tops the best month of 1928 and compares with 2,855,515 tons in January, 1928. Were 1929 to maintain the January gait, the year's output would slightly exceed 40,400,000 tons. This would wrest from 1926 the record it has held with 39,100,941 tons.

MONTHLY PRODUCTION

	1929	1928	1927	1926
Jan.	3,432,832	2,855,515	3,101,346	3,319,789
Feb.	.....	2,898,668	2,940,604	2,923,850
Mar.	.....	3,199,175	3,482,107	3,458,171
April	.....	3,181,975	3,424,377	3,438,805
May	.....	3,292,790	3,391,067	3,477,820
June	.....	3,082,340	3,089,726	3,232,478
July	.....	3,072,711	2,954,625	3,224,663
Aug.	.....	3,136,995	2,950,674	3,200,723
Sept.	.....	3,063,593	2,782,500	3,163,269
Oct.	.....	3,373,539	2,812,015	3,334,206
Nov.	.....	3,304,656	2,661,863	3,237,992
Dec.	.....	3,369,784	2,698,208	3,089,175
Total	.....	37,831,741	36,289,112	39,100,941

At the close of January 202 blast furnace stacks were active, a net gain of four over the close of December. The active total given in the Jan. 10 issue for Dec. 31 is revised to 198, instead of 197, through the blowing in of a Donner Steel Co. stack on the last day of December. In January six steelworks stacks were blown in, cancelling six blown out. Six merchant stacks were lighted, with only two blown out.

The abandonment of old and antiquated stacks continues. Seven were dropped from the rolls in January, bringing the available potential pig iron producing units as of Jan. 31 down to 328.

The January total is divided into 736,078 tons of merchant iron and 2,696,754 tons of nonmerchant. This was a gain for both divisions over December. Output of spiegeleisen and ferromanganese in January was 37,210 tons, against 34,541 tons in December.

Rate of Operation

(Relation of Production to Capacity)

	1929†	1928†	1927*
Jan.	81.5	65.4	71.2
Dec.	.....	80.2	61.8
Nov.	.....	81.1	63.0
Oct.	.....	79.3	64.5
Sept.	.....	75.2	65.9
Aug.	.....	74.4	67.6
July	.....	73.2	67.7
June	.....	76.0	73.2

***Based on coke pig iron capacity of 51,379,400 gross tons as of Dec. 31, 1926. †Based on capacity of 49,605,720 tons as of Dec. 31, 1927. Capacities computed by American Iron and Steel institute.**

AVERAGE DAILY PRODUCTION

	1929	1928	1927	1926	1925
Jan.	110,736	92,113	100,043	107,039	108,781
Feb.	.....	99,954	105,021	104,423	114,788
Mar.	.....	103,199	112,326	111,554	115,207
Apr.	.....	106,066	114,146	114,627	107,041
May	.....	106,219	109,388	112,187	94,642
June	.....	102,745	102,991	107,749	89,301
July	.....	99,120	95,311	104,021	85,976
Aug.	.....	101,193	95,183	103,249	87,328
Sept.	.....	102,120	92,750	105,442	90,862
Oct.	.....	108,824	90,710	107,555	97,351
Nov.	.....	110,155	88,728	107,933	100,775
Dec.	.....	108,702	87,039	99,651	104,808
Ave.	.....	103,365	99,422	107,126	99,645

New Specifications Out

The federal specifications board, Washington, is adopting new standards to be used by the government in purchasing foundry coke, foundry facing and silica mold wash. Comments concerning the new specifications are desired within six weeks by George K. Burgess, chairman of the board, federal bureau of standards, Washington.

DIVISIONS OF PRODUCTION

1928	Merchant	Non-merchant	Spiegel and ferro-manganese
Jan.	649,654	2,205,861	32,510
Feb.	579,298	2,319,370	27,376
Mar.	597,106	2,602,069	34,587
Apr.	586,045	2,595,930	33,599
May	596,664	2,696,126	38,466
June	589,127	2,493,213	38,628
July	584,611	2,488,100	42,230
Aug.	563,510	2,573,485	33,585
Sept.	580,344	2,483,249	31,170
Oct.	643,043	2,730,496	33,519
Nov.	632,869	2,671,787	38,811
Dec.	686,431	2,683,353	34,541
Total	7,288,702	30,543,039	419,022
1929			
Jan.	736,078	2,696,754	37,210

JANUARY PIG IRON PRODUCTION

	No. in blast last day of month Jan.	Dec.	—Total tonnage made— Merchant	Nonmerchant	—Totals— January	December
Ohio	47	45	137,549	683,144	820,693	793,036
Pennsylvania	68	68	168,278	956,351	1,124,629	1,127,968
Alabama	17	19	116,515	134,806	251,321	246,578
New York	15	13	100,792	114,123	214,915	186,669
Illinois	18	17	135,888	204,850	340,738	332,604
Colorado	3	3				
Indiana	15	14				
Maryland	5	4	6,864	440,369	447,233	438,915
Virginia	1	1				
Wisconsin	0	0				
Kentucky	1	2				
Massachusetts	1	1				
Tennessee	1	1	27,187	82,484	109,671	116,657
Utah	1	1				
West Virginia	3	3				
Michigan	4	4				
Minnesota	2	2				
Missouri	0	0	35,323	51,099	86,422	92,816
New Jersey	0	0				
Texas	0	0				
Spiegel and ferro—all states	....	....	7,682	29,528	37,210	34,541
Total	202	198	736,078	2,696,754	3,432,832	3,369,784

Price Discrimination on Quantity Orders Seems Legal in Decision

THE United States Supreme Court decision in the American Can Co. case, involving price discrimination, is being studied more closely than even the cement and maple flooring decisions of that court, according to Ernst & Ernst, accountants, New York. States this firm:

A rough summary of the decision is that manufacturers or other sellers of an article violate the Clayton anti-trust act if they discriminate in prices given to purchasers, when the discrimination tends to reduce competition between the purchasers. While there are many qualifications, nice interpretations and deductions, the decision will inevitably have important bearing on price policies of thousands of concerns.

Two competing packing companies bought cans from the American Can Co. One was charged higher prices than the other and was less able to compete. It brought suit and won finally in the Supreme Court. The court held that section 2 of the Clayton act does apply to cases of price discrimination, the effect of which may be to substantially lessen competition or tend to create a monopoly in the line of commerce in which the purchaser is engaged. Formerly it had been assumed that the act applied only to discriminations affecting the vendor's line.

There are certain exceptions to this new interpretation of the law. Price discrimination may be legal on quantity orders, or when there is a difference in quality or grade, or when the difference is based on cost of transportation, as when prices are quoted on a delivered basis. The reasons for these exceptions are fairly obvious.

There are two more exceptions which may prove difficult of application, however. One is in cases where price discriminations are "made in good faith to meet competition." If a seller gives larger discounts to one customer than to another, when conditions are comparable, and this leads to a price war between sellers, and some buyers are caught at a disadvantage in the price war, then the situation may be illegal under this new interpretation. If, however, the price war is merely a result of natural competitive conditions throughout a territory or trade, then the situation is not necessarily illegal.

Another difficult exception lies in the allowance of price discrimination when it is on account of difference in the cost of selling. These questions thereupon arise; What is the cost of selling? If some larger orders come without direct solicitation, is there no cost of selling? How are selling costs to be allocated among various orders or classes of orders? With the difficulties already existing in the field of sales accounting, it may often seem impossible to determine differences in selling costs as among various orders.

Many lawyers think that this American Can decision can be used by manufacturers who are hard pressed by their customers for price concessions, and that it may be an influence in modifying the buyers' market under certain conditions.

Corporation's Pensions in 1928 Total $3,488,487

The eighteenth annual report of United States Steel and Carnegie Pension fund shows that $3,488,487.90 was distributed in 1928 as pensions among retired employes of the Steel corporation and its subsidiaries. The Carnegie Steel Co. was first among the subsidiaries in the amount paid to retired employes, the sum being $885,292.28. Some of the companies and their pension disbursements are: American Steel & Wire Co., $671,339.85; American Sheet & Tin Plate Co., $441,926; National Tube Co., $383,320.85; H. C. Frick Coke Co., $305,651; Illinois Steel Co., $179,765.92; American Bridge Co., $156,139.43; Oliver Iron Mining Co., $128,726; Duluth & Iron Range Railroad Co., $51,921; Tennessee Coal, Iron & Railroad Co., $48,321; Elgin, Joliet & Eastern Railway Co., $44,014, and Bessemer & Lake Erie Railroad Co., $41,167.

There were 1195 employes added to the pension roll during 1928 and 583 were removed from the list. At the close of the year 7000 were on the roll. The average age of the 1195 employes retired in 1928 was 63.86 years. Their average period of service was 34.10 years, and the average monthly pension, $53.55.

The total amount paid in pensions since the inauguration of the pension plan on Jan. 1, 1911, was $22,325,422.

Malleable Group Engages Shop Consultant

A new activity of promising benefits, comprising a plan of shop practice consulting service, has been inaugurated by the Malleable Iron Research institute, Union Trust building, Cleveland. J. B. Deisher, Rochester, N. Y., a specialist in malleable iron practice, has been engaged as a shop practice engineer for the conduct of the work.

The general scope of his services, which will be given members as an added research activity of the institute, will embrace consultation and advice upon all phases of melting furnace and annealing oven practices, of molding practices including the gating and feeding of castings to insure soundness.

Sectional shop practice meetings of shop men will also be held under the direction of Mr. Deisher for the discussion and consideration of shop problems of general interest and concern. A more rigid plan of product inspection will form a part of the enlarged program.

There will be no change in the conduct or scope of the institute's laboratory and general metallurgical research work which is in charge of Enrique Touceda, consulting engineer of the institute.

Mr. Deisher, for 14 years was with the Symington Co., Rochester, N. Y., for 2½ years with the American Malleable Castings association and Malleable Iron Research institute as assistant to the consulting engineer, and in 1927 was sent to Europe by the American Radiator Co. as consulting engineer in its malleable plant in a suburb of Paris. Henceforth he will devote all his time to his new connection.

Merger of American and Standard Approved

Pittsburgh, Feb. 5.—Directors of the American Radiator Co., New York, and the Standard Sanitary Mfg. Co., Pittsburgh, have approved plans for a merging of the two companies. It is proposed to organize a holding company, which will make an offer of exchange of securities to stockholders on the following basis:

Four shares of common stock of the new corporation for one share of American Radiator preferred; one share of new 7 per cent cumulative preferred for one share of Standard Sanitary preferred; four shares of new common for one share of American Radiator common; 1.09043 shares of new common for one share of Standard Sanitary common. It is expected that the new common will be on a $1.50 annual dividend basis.

Combined earnings of the two companies in 1928 were about $21,300,000, equal after preferred dividends to $2.32 a share on the proposed common stock.

The American Engineering Council, New York, at the request of the American Society of Mechanical Engineers, is asking the bureau of census, at Washington, to have the number of man-hours worked in the manufacturing establishments of the United States reported in the next census of manufacture.

Crane Makers Seek Cause of Lessened Sale Volume

NEW YORK, Feb. 5.—Sellers of equipment for handling materials within plants are watching developments over the next couple of months with particular interest. Dullness so far this year has been discounted as seasonal, but with expansion programs getting under way, the next few weeks should be of greater significance.

The past few months have revealed mixed trends in material handling equipment. Of the four major classifications—cranes, hoists and monorail, industrial trucks, and belt and roller conveyors—the net volume of business in at least two has been disappointing, namely, electric overhead cranes and hoists. Notwithstanding a moderate increase in general industrial construction, the total valuation of sales in these classifications during the past year has declined.

Statistics for 1928 show that electric overhead crane business declined not only in value, but in number. Last year 1077 cranes valued at $7,597,419 were awarded, against 1128 cranes, valued at $7,996,000 in 1927; and in point of valuation, this was the poorest showing since 1922, when total orders amounted to $6,897,761.

In electric hoists there was an actual increase in the number placed, the total being 5248 as against 4578 in the preceding year; but the gain was not enough to stave off a slight decrease in valuation, a decrease which may have been due to a smaller average size of hoist, or to lower prices, or to both.

Industrial truck sales, on the other hand, showed an increase in total valuation and in number of trucks involved. The gain was 18 per cent as 1465 trucks were placed, against 1259 in the preceding year; and of the former number 115 were for export, compared with 130 in 1927. Definite figures on the roller conveyer industry are not available, but possibly of some significance is the fact that sales of at least two or three of the larger builders increased between 20 and 30 per cent.

Over-capacity has been the predicament of many leading industries, particularly since the World war. Numerous mergers and combinations have brought demand and producing capacity closer, and in recent months similar important negotiations in the overhead crane industry have been undertaken and in some instances concluded. However, consolidations can only be counted upon to go so far. Trade leaders believe that the greatest strides can only be made by the application of modern trade practices, something that requires time.

What the outlook is for this year, electric overhead crane builders are loath to predict. Naturally, they are hopeful that their continued efforts to bring about closer co-operation within the industry will bear greater fruit. With business last year perhaps $800,000 under the average for the past eight years, they also are hopeful that there will be a greater volume of business.

The trend in crane buying in recent years is reflected in the following comparative statement based on statistics compiled by the Electric Overhead Crane institute:

	Orders in dollars	Shipments in dollars
1928	7,597,419	7,164,480
1927	7,996,000	9,304,910
1926	11,687,752	11,722,353
1925	10,770,158	9,742,121
1924	8,899,742	9,420,305
1923	9,168,123	10,567,479
1922	6,897,761	3,795,799
1921	2,708,233	6,892,778

During certain of the peak years monthly orders reached a high volume. In October, 1926, sales amounted to $1,428,875, with orders in July that year aggregating $1,377,692 and in March $1,114,182. The monthly average for that year was $973,929. In the preceding year, also a large year, the monthly peak was reached in December, when new orders amounted to $1,380,064, with May following with $1,213,850; October, $1,085,311; and March $1,001,829. In that year the monthly average was $897,513. However, it is not to be overlooked that such figures are quite the exception.

Last year's orders and shipments were as follows:

	Orders in dollars	Shipments in dollars
January	356,676	431,564
February	518,776	594,897
March	704,135	671,916
April	410,499	658,752
May	708,145	546,467
June	573,264	599,612
July	732,792	463,105
August	821,182	563,722
September	713,221	464,147
October	774,709	806,469
November	725,372	701,007
December	558,653	662,822

Precisely what the give and take is as it exists among the various classifications of labor saving equipment is difficult to define. Clearly there is some and always will be. But there is no deviating from the point that each of the leading types dominates in certain particular classes of work; and that mechanical handling methods continue to replace hand labor.

Announce Plans for Tour of Foundrymen

A tentative program of the International Foundrymen's congress, to be held in England, May and June, has just been received. Certain changes and additions have been made to the itinerary of the tour arranged for American delegates announced on page 1586 of the June 14, 1928, issue of IRON TRADE REVIEW.

Additions to the preconvention tour include an official reception for all delegates and ladies to be held Tuesday, May 28, at Birmingham; a trip to Matlock Bath in the Derbyshire Peak district where they will be entertained at dinner on Wednesday, May 29; and reception at the town hall by the Lord Mayor of Manchester on Thursday, May 30.

The revised program of the International Foundry conference and exhibition is as follows:

Tuesday, June 11

Evening: Reception for all delegates and ladies.

Wednesday, June 12

Morning: Opening meeting of conference. Reading and discussion of papers.
Afternoon: Free to attend foundry exhibition.
Evening: Banquet, Hotel Cecil.

Thursday, June 13

Morning: Reading and discussion of papers. Lunch to European and overseas delegates at invitation of Messrs. F. W. Bridges & Sons Ltd., organizers of foundry exhibition.
Afternoon: Official visit to foundry exhibition.
Evening: Tea to delegates at invitation of Messrs. F. W. Bridges & Sons Ltd.

Friday, June 14

Morning: Reading and discussion of papers.
Afternoon: At liberty.
Evening: Visit to theater.

(Official arrangements terminate)

Local branches of the Institute of British Foundrymen will arrange visits to important foundries and other works in each area visited. The preliminary list of works available for visitation by invitation of respective managements, is as follows:

Birmingham District

W. & T. Avery Ltd., Birmingham; Austin Motor Co. Ltd., Birmingham; John Harper & Co. Ltd., Willenhall; Sterling Metals Ltd., Coventry; Alfred Herbert Ltd., Coventry; Morris Motors Ltd., Coventry; British Piston Ring Co. Ltd., Coventry; Midland Motor Cylinder Co. Ltd., Birmingham; Birmingham university and British Cast Iron Research association.

Derby District

Ley's Malleable Castings Co. Ltd., Derby; Rolls Royce Ltd., Derby; Derby electric power plant, Derby; and Stanton Ironworks Co. Ltd., Stanton.

Manchester and Liverpool Districts

Metropolitan Vickers Electrical Co. Ltd., Manchester; Penpoll Smelting Co. Ltd., Liverpool; Platt Bros. & Co. Ltd., Oldham; and Lever Bros. Ltd., Port Sunlight.

Newcastle District

North Eastern Marine Engineering Co. Ltd.; Armstrong, Whitworth & Co. Ltd.; and Smith, Patterson & Co. Ltd.

Sheffield District

Edgar Allen & Co. Ltd.; Cammel Laird & Co. Ltd.; and Brown-Firth Research Laboratories.

Emphasizes Importance of Pacific Coast Steel Industry

With Ingot Capacity of 600,000 Tons Annually, Two Leading Producers in Far West Represent Capital Investment of $55,000,000—Hold Fifth Conference at Del Monte

SPEAKING before the fifth annual conference of the Iron, Steel and Allied Industries of California, at Del Monte, Calif., Jan. 24-26, L. F. Rains, general manager, Columbia Steel Corp., San Francisco, pointed to the increasing importance of the steel industry on the Pacific Coast. In an address "The Manufacture of Iron and Steel in the West," he declared that the two major steel producing units on the Pacific coast—Pacific Coast Steel Co. and Columbia Steel Co.—represent a capital investment of approximately $55,000,000 and an ingot capacity of 600,000 net tons per annum. "The total gross sales in 1928," he said, "amounted to about $30,000,000. About one-fourth of the steel consumed each year on the coast, estimated to be between 1,750,000 and 2,000,000 net tons per year, is supplied by these companies."

In speaking of the products now manufactured by the steel interests on the Pacific coast, he mentioned merchant and reinforcing steel bars, universal plates, small structural shapes, sheets, wire products and nails, nuts and bolts, wire netting, pig iron, coke, copper rods and wire, steel forgings, limestone, iron ore and coke. Tin plate is to be produced on the coast for the first time in March of this year. Mr. Rains said that consumers in the Far West are dependent on foreign and eastern mills for plates, all special steels, large structural, shapes, pipe, tin plate, tubing and a large number of other products.

Purchases Total 16 Million

"During the year 1928," he continued, "these companies purchased $16,000,000 worth of material, most of which came from Pacific coast industries. They used 441,000 tons of steel scrap, worth approximately $5,000,000, consumed 1,176,000 barrels of fuel oil and expended $800,000 for electric power. The total payroll was $9,742,532 and the daily average of men employed was 5622. They handled in and out of their plants 54,399 loaded railroad cars and paid $4,469,000 to the railroads for freight. The total tonnage of raw materials, semi-finished and finished steel products transported was 2,735,000 tons."

An analysis of these figures, Mr. Rains stated, would show that the steel industry on the Pacific coast was fast becoming the leading indutsry in the West and that allied trades and business in general was already profiting to a large extent. He pointed out that the steel industry on the coast was on a sound economic basis as compared with the eastern steel industry and that the prosperity of the industry and business generally would increase in direct proportion to the increase in consumption of steel products.

The Friday session of the conference, at which Mr. Rains presented his address, was presided over by Frederick J. Koster, president of the California Barrel Co., San Francisco, executive chairman of the conference. He reviewed the results achieved so far and predicted even greater progress for the coming year.

Explains Simplified Practice

Following Mr. Rains, Ray M. Hudson, department of commerce, Washington, addressed the conference on "Standardization and Simplified Practice." He reviewed briefly the work that the department had done in helping to reduce the number of sizes of many forms of products, and stated that simplification was not a panacea for all the ills of industry and business.

"There is no single formula for assuring better net profits," Mr. Hudson said, "but consistent effort to perfect your sales program, to improve your production program, and to reduce overhead will help greatly to that end. Review of the methods used by successful companies in perfecting their sales programs shows the first step is a thorough analysis of sales with respect to profit sources."

Continuing he said, "Increased profits will result from concentration on the five principal turnovers; viz., inventory, accounts receivable, capital, personnel, and customer. But underneath all of these avenues to better profits is the continual necessity to study costs."

With the subject of "Understanding and Intelligent Co-operation in Business," the third speaker on the program, Orra A. Monnette, Bank of Italy, Los Angeles, urged that all business men assume a more humanitarian attitude in their dealings with their fellowmen and their competitors.

Bennett Chappel, vice president, American Rolling Mill Co., talking on "The New Day in Merchandising," pointed out that the right sort of publicity was one of the most valuable aids to the sales department of any concern. He urged that business men give more thought to this subject and to endeavor constantly to create in the minds of the buying public a consciousness of their product.

A clarification of selling practices not alone for the purpose of eliminating unfair practices between members of the industry but also for the purpose of protecting the public against extortion was advocated by Charles F. Abbott, executive director, American Institute of Steel Construction, New York. Mr. Abbott explained that the steel fabricators of the United States and Canada now are considering the advisability of drafting a code of selling practices which will be filed with the Federal trade commission as an evidence of what constitutes unfair trade practice.

Attacks Unfair Practice

"Our code of standard selling practice," said Mr. Abbott, "will establish principles that should be observed by the producing mills and the members of the Institute; by members when in competition with one another; by members and those representing the buying interests, including architects, engineers, owners and the general public. In each instance the code will encourage the minimum requirements for fair competition and honorable dealing.

"There is nothing new about codes or the equable conduct of business. Those who have sensed the purpose of the institute are familiar with the

need of the principles as set forth in the code. Years of experience have demonstrated the difference between right and wrong methods, yet changed competitive conditions have had a tendency to place emphasis upon the inefficient at the expense of the more profitable.

"Our business structure has been founded upon individual initiative.

"To retain the full benefits arising from unhampered initiative and avoid the uncertain handicaps arising from regulatory legislation, individuals must co-operatively accept responsibility for fair and intelligent business procedure within their industry. Most industries are comprised of a large majority who are intelligent business men and who are fair minded and who always desire to control their activities according to the most advanced principles of honesty and fair dealing. It is usually the small majority that either through ignorance or selfishness place too much reliance upon questionable business methods.

"The structural steel industry, through the institute, recognizes the fundamental conception of right methods to be expressed in a code of standard selling practice in order that the industry may constantly protect its position in the industrial world. No matter how sincerely the acceptance of principle may be, that does not, by itself, assure its practical application in the daily transaction of business. Varying interpretations are made by individuals and unless the basic principle is sincerely accepted by all, then the rule fails in practical application.

"The institute believes that a code of standard selling practice, to be effective, must be explicit and the rules must cover all anticipated eventualities. Nearly every member of the institute recognizes the need of constructive measures to control its business procedure. As individuals they are invariably enthusiastic over any plan that might tend to eliminate the unfair procedure and to replace them with methods founded upon the Golden Rule. It is necessary to go still further in producing a code that will establish the standards that all must strive to maintain and in doing so the business of the industry will continuously be elevated upon a higher plane. Any other course would substitute individual interpretations and action for co-operative action and in the end that means no real standard of conduct."

The sessions, Jan. 24, were devoted to group committee meetings and the following suggestions for resolutions for consideration were presented to each group: That price cutting is unethical and should be discontinued; that antitrust laws are obsolete and should be revised to conform to present conditions; that credit protection on paper finance jobs is essential; that the establishment of credit interchange as between members of each group is desirable; and that foreign importations of steel products be reduced.

Under the heading of price cutting it was the concensus of opinion of all the groups that such practices were detrimental to the steel industry and to the general public and that closer co-operation between the members of the individual groups would materially help to eliminate this evil.

Would Minimize Imports

On the subject of foreign importations, the resolution passed by the merchant steel dealers groups, which was similar to those passed by the other groups, follows: Resolved, that it is the desire of the merchant steel dealers group that importation of foreign steel be minimized, realizing that all basic materials brought into this country tend to tear down the purchasing power of the labor employed in the industry to the detriment of the public in general. This group recommended that an increase in the tariff be considered.

Special meetings for the foundry and manufacturer groups were held on Jan. 24, the former in the morning and the latter in the afternoon. At each of these meetings Mr. Hudson and Luther S. Becker, chief, iron and steel division, bureau of foreign and domestic commerce, Washington, delivered addresses.

Following a brief business session on Saturday officers for the coming year were elected and committee chairmen for the northern and southern groups were named. At the last meeting a number of recommendations were made, including the following:

That the conference reaffirm the adoption of the principles of business conduct as adopted by the United States chamber of commerce, and bring them forcibly to the attention of each of the groups for promulgation among their membership.

That it be the sense of this conference that the present program has been productive of much good to the industry and that it be continued more actively, with particular reference to:

a. Extension of marketing territory through fair and necessary rate adjustments;
b. The development of markets for domestic payrolls on a basis of service, quality and price;
c. The introduction of further standard grades and practices to lower costs and increase efficiency of production and distribution;
d. The development of a higher standard of business ethics in the industry;
e. Greater publicity among the various trade and business groups on the importance and value of the iron and steel industry to the prosperity of California and the Pacific coast.

That two regional meetings of the Iron, Steel and Allied Industries of California be held during the coming year, the first in Los Angeles during the month of June and the second in San Francisco during the month of October, 1929.

That the next annual conference of the Iron, Steel and Allied Industries of California be held at Del Monte, Feb. 13-14-15, 1930.

New Officers of Iron, Steel and Allied Industries of California

Chairman: E. C. Wilson, Wilson & Willard Mfg. Co., Los Angeles
Vice chairman from southern California: E. F. Gohl, McClintic-Marshall Co., Los Angeles
Vice chairman from northern California: R. M. Alvord, General Electric Co., San Francisco
Secretary: Charles S. Knight, California Development association, San Francisco

COMMITTEE CHAIRMEN

	SOUTH	NORTH
Traffic Committee	T. A. L. Loretz, Consolidated Steel Corp., Los Angeles	W. C. Hubner, A. M. Castle & Co., San Francisco
Merchant Steel Dealers	E. Jungquist, Percival Steel & Supply Co., Los Angeles	George R. Borrmann, George R. Borrmann Steel Co., Oakland
Structural Steel Fabricators	C. E. Bradburn, Pacific Iron & Steel Co., Los Angeles	C. H. Ramsden, Pacific Coast Engineering Co., Oakland.
Manufacturers	E. C. Wilson, Wilson & Willard Mfg. Co., Los Angeles	R. M. Alvord, General Electric Co., San Francisco
Foundries	Carroll A. Stilson, Metal Trades Manufacturers association, Los Angeles	C. E. Williams, Columbia Steel Corp., San Francisco
Reinforcing Steel Dealers	J. Earl Heber, Truscon Steel Co., Los Angeles	Charles M. Gunn, Gunn Carle & Co., San Francisco
Steel Mills	Harvey Hewitt, Southern California Iron & Steel Co., Los Angeles	J. D. Fenstermacher, Columbia Steel Corp., San Francisco

Industrial Men in the Day's News

David C. Park, President and Treasurer, Smith & Caffrey Co., Syracuse, N. Y.

HIS ladder of success, mounted in 31 years, comprised but 10 steps from office boy to president.

WITH only a grade school education, his night school studies in drawing and architecture fitted him for higher things when his company expanded from a gray iron jobbing foundry to ornamental iron and steel fabrication.

THE Syracuse Purchasing Agents' association finds him a willing and energetic worker on various committees, as does his local chamber of commerce.

TEN steps in 31 years might seem a remarkably slow pace until it is realized that they were taken by David C. Park up the "success" ladder. They then come to represent the rather rapid and remarkable rise of this erstwhile office boy to the president's chair. His election to that office in the Smith & Caffrey Co., Syracuse, N. Y., fabricator of ornamental iron and structural steel and gray iron foundry operator, was noted in IRON TRADE REVIEW of Nov. 22. These 10 steps respectively were: Office boy, helper in the foundry and pattern shops; timekeeper; cost accountant; bookkeeper; estimator in ornamental iron and structural steel; purchasing agent; general office supervisor; secretary and director; and finally treasurer and president. In his election the board of directors carried out the expressed wish of his immediate predecessor, the late William Blackwood Smith, who died March 24, 1928.

Born in Rome, N. Y., in 1882, he one year later was removed to Syracuse, N. Y., where he since has resided and where he obtained his grade school education. In 1897 he entered the employ of the Smith & Caffrey Co. as office boy. A portion of his introductory years was spent as helper in the foundry as well as the pattern shop, where he showed an aptitude for work. For its first 15 years the company operated a gray iron jobbing foundry exclusively. It then decided to branch out into ornamental iron and structural steel fabrication. It is in these related lines where this company has shown most growth, until now it is one of the largest companies of this nature which operates in central New York state.

During his foundry career Mr. Park advanced to timekeeper, cost accountant and bookkeeper. At night school he augmented his early education, studying drawing and architecture, and when the company added ornamental iron and structural steel, Mr. Park was ready to grow with it. His superiors discovered his ability to read drawings and make estimates and he immediately was made estimator in the newly-added departments. He then discharged the duties of purchasing agent and as the business continued to expand, he devoted most of his time to the purchasing department and then to general office supervision.

Upon the death of H. L. Eamans, the company's secretary, in 1921, Mr. Park was elected to succeed him. At that time he also was elected a director and he held both of those offices for about seven years or until Mr. Smith, president and treasurer, died last March. The latter's post was nominally filled by Mr. Park until his formal election in November.

For about 10 years Mr. Park has been an active member of the Syracuse Purchasing Agents' association. He has served in different capacities and for the past two years he has been a director of the National Association of Purchasing Agents. He is an active member of the Syracuse chamber of commerce and the Citizens', Technology and Seneca Golf clubs.

In the pursuit of sports of all kinds, Mr. Park finds his hobbies and when business permits, he is found on the golf course.

Men of the Industry

WILLIAM J. CORBETT, who recently resigned as secretary-manager of the Steel Founders' Society of America, the trade association of important steel casting producers in the United States and Canada, has been appointed assistant to the president of the Fort Pitt Steel Casting Co., McKeesport, Pa. This company specializes in the manufacture of carbon and alloy steel castings by the electric furnace process.

Mr. Corbett was graduated from Carnegie Institute of Technology in 1914 with the degree of bachelor of science in mining engineering, and later received the professional degree of metallurgical engineer. His first employment was as a special apprentice at the Alliance, O., works of the American Steel Foundries, a year later being transferred to the Chester, Pa., works of the same company. He was production engineer at the time he resigned to accept a commission in the United States army in 1917.

After demobilization following the armistice, Mr. Corbett was placed in charge of the manufacture of castings at Watertown arsenal. In the latter part of 1919 he again became affiliated with the American Steel Foundries, as assistant to the fourth vice president with headquarters in Chicago. In 1923 he became industrial engineer for the Electric Steel Founders' research group, composed of five leading electric steel foundries and which was organized in 1920 to conduct co-operative research work in the various phases of steel castings manufacture. The group includes the Fort Pitt Steel Casting Co.

When the scope of the activities of the Steel Founders' Society of America was enlarged in 1925, Mr. Corbett was made secretary-manager, a post he has since held. His activities brought him in contact with all the problems in the steel casting industry. He has been active on numerous committees of the American Foundrymen's association and the American Society for Testing Materials, and also on the joint committee for the investigation of the effect of sulphur and phosphorus in steel, the joint committee on pattern equipment standardization, and the joint committee on molding sand.

* * *

James W. Armour has been elected vice president of the Riley Stoker Corp., Worcester, Mass. Mr. Armour was graduated from Worcester Polytechnical institute in 1913.

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J. L. Patterson has been appointed manager of the Buffalo plant of the United States Aluminum Co.

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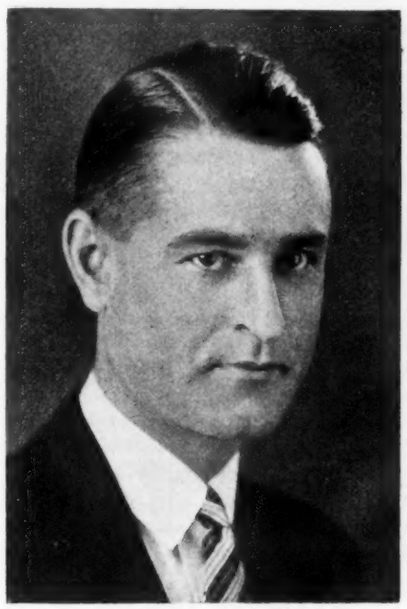
Fred H. Marsh and John H. Merz recently were added to the board of directors of the Paxton & Vierling Iron Works, Omaha, Nebr., structural iron and steel, at the company's forty-



WILLIAM J. CORBETT

third annual meeting. The following officers were re-elected: President, A. J. Vierling; treasurer, B. J. Scannell, and secretary, F. R. Vierling.

* * *

H. W. Seymour, formerly general manager of sales of Crane Co., Chicago, has been elected a vice president. Other directors and officers have been re-elected.

* * *

Capt. H. C. Richardson, commander of one of the N-C boats which flew across the Atlantic ocean in 1919, will resign from the United States navy, March 1, to become designing engineer for the Great Lakes Aircraft Corp., Cleveland.

* * *

Norris J. Clarke, president of the Lake Erie Bolt & Nut Co., Clarence I. Ochs, president of the Eaton Axle & Spring Co., and Lincoln R. Scafe, general manager of the Fisher Body Co., Cleveland, have been added to the board of directors of the Morris Plan bank of Cleveland.

* * *

Walter L. Heughes, president of W. L. Heughes & Co., Rochester, N. Y., structural steel erectors, has been elected a director of the Genesee Valley Trust Co., that city.

* * *

Frank H. Guppy, secretary of the Superior Steel Products Co., Monaca, Pa., was recently elected president by the board of directors of the Providence hospital, Beaver Falls, Pa.

* * *

Mont Murray, formerly president of the Keystone Bronze Co., Pittsburgh, recently was elected chairman of the board of the General Bronze Co., that city.

* * *

E. A. Kerby has been appointed Chicago manager for the Midwest Piping & Supply Co. Inc., St. Louis, builder of power plant, industrial and oil refinery piping. Mr. Kerby formerly was with D. H. Skeen & Co., Chicago.

* * *

Col. R. L. Hays, for the past 15 years representative in the Spencer, W. Va., territory for Cabot Co. Inc., has become identified with the sales organization of the Wheeling Corrugating Co., Wheeling, W. Va.

* * *

F. J. Tone, president, and George Rayner, vice president of the Carborundum Co., Niagara Falls, N. Y., have been elected directors of the Hutto Engineering Co. Inc., Detroit, manufacturer of cylinder grinders.

* * *

J. L. Beltz is advertising manager for both the Thew Shovel Co., Lorain, O., and its subsidiary, the Universal Crane Co., of Cleveland. Effective Jan. 1, the advertising departments of both companies were merged under Mr. Beltz, with headquarters at Lorain.

* * *

William H. Sellew, since 1927 connected with the department of engineering research of the University of Michigan, Ann Arbor, Mich., and formerly with the Michigan Central and Pennsylvania railroads, has been made assistant director of the department. He is the author of "Steel Rails—Their History, Properties, Strength and Manufacture."

* * *

Frank B. Baird, president of the

Buffalo Union Furnace Co., Buffalo, has been elected president of the Buffalo Better Business bureau.

* * *

E. F. Kiraly, formerly assistant employment manager for the Murray-Ohio Co., Cleveland, now is affiliated with the Bender Body Co.

* * *

Thomas R. Colley of the Seneca Iron & Steel Co., Buffalo, has been elected a director of the Bank of Blasdell, N. Y.

* * *

Charles H. Lawrence has been made president of the Lansing Stamping Co., Lansing, Mich. Alton M. Hager was made a director of the company.

* * *

John Dalzell has been appointed purchasing agent for the Heppenstall Forge & Knife Co., Pittsburgh, to succeed V. I. Cox, resigned.

* * *

W. S. Miller has been appointed eastern district manager at Buffalo for the Charles C. Kawin Co., Chicago, foundry engineer, chemist and metallurgist.

* * *

O. P. Berrien, manager of the Crager Wire & Iron Works, Salt Lake City, was recently elected president of the Utah Manufacturers' association. He succeeds Roy Bullen.

* * *

Frank Purnell, assistant president of the Youngstown Sheet & Tube Co., Youngstown, O., has been elected a director of the Youngstown Foundry & Machine Co.

* * *

J. Ross Whitney, secretary of the Federal Drop Forge Co., Lansing, Mich., was recently added to the board of directors to succeed J. P. Hopkins, deceased.

* * *

Thomas H. Queer, for the past five years assistant to the coal purchasing agent of the H. C. Frick Coke Co., Pittsburgh, has become identified with the sales department staff of the Pittsburgh Coal Co., that city.

* * *

O. W. Ellis, metallurgist, Pittsburgh, has been designated to take charge of the metallugical research work to be undertaken by the recently organized Ontario Research foundation, Toronto, Ont.

* * *

James F. McCrory Jr., for eight years assistant manager at Pittsburgh for Eaton, Rhodes & Co., Cincinnati, has succeeded H. A. Robinson in the Pittsburgh office of Rogers Brown & Crocker Bros. Inc., New York. Mr. Robinson has become identified with the Donner Steel Co. Inc., Buffalo. Since November, 1927, Mr. McCrory has been in charge of coke sales for the H. H. Landay Co. Inc., Detroit.

* * *

G. H. Austin, of the American Steel Foundries, Hammond, Ind., was elected president of the Hammond Manufacturers' association, at a recent meeting. Peter McShane, of the Union Metal Products Co., that city is vice president.

* * *

Cedric A. Fegtly, engineer for the Pittsburgh-Des Moines Steel Co., Des Moines, Iowa, has been promoted to be superintendent of bridge construction and is removing to Dresden, Tenn., to assume charge of the company's bridge projects in that territory.

* * *

H. A. Baker has been appointed service manager at New York of the International General Electric Co., Schenectady, N. Y. Mr. Baker succeeds C. F. Neave, who has been named manager of the newly organized refrigeration department of the company.

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Herbert C. Beik, 21 East Fortieth street, New York, has been appointed district engineer and sales representative for the Despatch Oven Co., Minneapolis, manufacturer of industrial, laboratory and conveyor ovens. His territory will comprise the eastern part of New York state, Long Island, the northern part of New Jersey, Connecticut, Rhode Island, Massachusetts, New Hampshire and Maine.

* * *

F. J. Griffiths, chairman of the board, Central Alloy Steel Corp., Massillon, O., sailed Feb. 2 for Europe to spend two months visiting the leading steel plants in France and Germany. He will spend considerable time at the Krupp works at Essen, studying the latest developments in connection with nitroalloy and nirosta steels, for the manufacture of which the Central Alloy corporation holds licenses in the United States.

* * *

Murray N. Billings, traffic manager, Illinois Steel Co., Chicago, has been appointed traffic manager also of the Universal Portland Cement Co., 208 South La Salle street, Chicago. In this latter position he succeeds F. T. Bentley, who has been identified with subsidiaries of the United States Steel Corp. for 35 years and with the cement company since its organization in 1906. He retired from active service last year but continues in a consulting capacity.

Frank E. Guy has been appointed eastern traffic manager for the Universal company, with headquarters at Pittsburgh. Mr. Guy succeeds L. C. Bihler, who also was traffic manager of the Carnegie Steel Co., and who has been made assistant to the president and general traffic manager of that company.

* * *

Thomas Scott, superintendent of the Rogers mine at Iron River, Mich., for the M. A. Hanna Co., has been appointed general superintendent of all the company's mines in Michigan.

J. R. Guayle, superintendent of the Hanna company's Zimmerman mine at Iron River, Mich., has been transferred to the Rogers mine as superintendent.

R. B. Wortley, chief mining engineer at Iron River, Mich., for the Hanna company has been made superintendent of the Wakefield mine at Wakefield, Mich.

* * *

W. R. Mau, formerly district manager of sales in the Chicago district for the Vanadium Alloys Steel Co., Latrobe, Pa., has been appointed assistant manager of sales in the Middle West district with headquarters in Chicago. Herbert M. Bray, identified with the Colonial Steel Co., Pittsburgh, in a similar capacity in the Chicago area, will represent his company throughout the larger territory, also having been named assistant manager of sales. The Vanadium company recently acquired the Colonial Steel Co. Mr. Mau, prior to becoming affiliated with the Vanadium Alloys Steel Co., was general superintendent of the Rich Tool Co.

* * *

G. Walter Humes, for the past several years assistant superintendent of the open-hearth department at the Farrell, Pa., plant of the Carnegie Steel Co., has been appointed to succeed Norman S. Powell, who leaves the superintendency there to assume a similar charge at the open-hearth department of the Duquesne works of that company, succeeding R. B. Bostwick.

Charles E. Cricks succeeds Mr. Humes as assistant superintendent. Mr. Powell first became identified with the Farrell plant in 1908 as field engineer. He later became assistant superintendent of the open-hearth department of the North works, Sharon, Pa. When that plant was dismantled, he returned to the Farrell plant as assistant superintendent of open-hearth furnaces and in a short time was appointed superintendent of that department.

* * *

Frank R. Hastie, formerly manager of the Springfield, Mass., branch of the American Radiator Co., has been

(*Concluded on Page* 442)

European Markets Are Quieter

Effort at Price Control in Midland District of England Confuses Situation—Heavy Steel Trade Improving—Demand for Black and Galvanized Sheets Brisk—German Domestic and Export Trade Expanding

European Headquarters,
IRON TRADE REVIEW,
Caxton House, Westminster, S. W.1

LONDON, Feb. 5.—(*By Cable*)—The Midland pig iron situation is confused, owing to attempts to control prices. The heavy steel trade is improving, especially in the Northeast. Orders for rolling stock have tapered off.

The Vulcan Foundry has recently obtained an order from India for 60 locomotive boilers. Barrow steelworks are busy, but new orders are scarce. The Staffordshire finished iron trade has been showing improvement recently.

Demand for black and galvanized sheets for domestic and export shipment is brisk. Tin plate is quiet, but an increase in inquiries is expected by leading British makers.

German domestic and export business is expanding, according to a dispatch from Berlin. Japan is buying wire rods. French and Belgian markets are quieter, but prices are firm, and the outlook is good. Holland is buying plates.

British Steel Market Shows Steady Expansion

Office of IRON TRADE REVIEW,
Prince's Chambers, Corporation St.

BIRMINGHAM, Eng., Jan. 18.—Statistics issued by the National Federation of Iron and Steel Manufacturers show the position of the British iron and steel trade at the end of last year. Since August the output of pig iron and steel has steadily expanded, but a setback came in December owing to the holiday.

The pig iron total then was 540,400 tons, bringing the total for the year to 6,611,300 tons, compared with 7,292,900 tons in 1927. While the difference between the November and December output of pig iron was only 4000 tons, steel output fell sharply by about 80,000 tons.

Trade returns tell a more encouraging story. British exports have increased from 4,457,087 tons to 4,605,665 tons, while the year's imports fell from 4,476,859 in 1927 to 2,952,857 tons in 1928. The most prominent item is still semifinished steel, but demand for this has slackened following recent stiffening of Continental prices. On the Birmingham market yesterday 2-inch billets were quoted at £6 ($29.10) per ton delivered. Belgian No. 3 iron was up to £7 5s ($35.16) while this material is still about £1 10s ($7.27) cheaper than domestic bars for nut and bolt making. It has risen by £1 5s ($6.06) in twelve months.

Sterling $4.85

Rerolling mills apparently made the most of their opportunity when Continental material was cheap, and are not buying much steel and iron at this time.

Makers of best Staffordshire iron, which always has a certain demand on account of its high quality and rust resisting qualities, have fair order books and improvement in the shipbuilding industry has brought better business to chain and cable iron producers.

Mills rolling plates and sections are making better time but the structural trade is not making heavy demands upon their resources.

In the Birmingham district engineers are said to be handling a variety of small contracts. It is rare to have

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, Feb. 4	*British* Gross Tons U. K. Ports	*French* Metric Tons Channel Ports	*Belgium and Luxemburg* Metric Tons Channel Ports	*German* Metric Tons Rotterdam or North Sea Port
Export Prices f. o. b. Ship at Port of Dispatch—By Cable				
PIG IRON	£ s d	£ s d	£ s d	£ s d
Foundry No. 3, Silicon 2.50-3.00	$16.01 3 6 0*	$16.01 3 6 0	$16.01 3 6 0	$16.01 3 6 0
Basic	15.76 3 5 0	16.01 3 6 0	16.01 3 6 0	15.28 3 3 0
Basic-bessemer	16.98 3 10 0†	16.01 3 6 0	16.01 3 6 0	14.55 3 0 0
Hematite, Phosphorus 0.02-0.05	17.22 3 11 0	23.07 590*	....	16.98 3 10 0
SEMIFINISHED STEEL				
Billets	$30.11 6 5 0	$24.73 5 2 0	$24.73 5 2 0	$24.25 5 0 0
Wire rods	41.83 8 12 6	30.11 6 5 0	30.31 6 5 0	30.31 6 5 0
FINISHED STEEL				
Standard rails	$37.59 7 15 0	$31.53 6 10 0	$31.53 6 10 0	$31.53 6 10 0
Merchant bars	1.68c 7 15 0	1.36c 6 4 0	1.36c 6 4 0	1.38c 6 5 0
Structural shapes	1.60c 7 7 6	1.11c 5 1 0	1.11c 5 1 0	1.12c 5 2 0
Plates, ship, bridge and tank	1.76c 8 2 6	1.39c 6 6 0	1.39c 6 6 0	1.38c 6 5 0
Sheets, black, 24 gage	2.17c 10 0 0	2.28c 10 7 6	2.28c 10 7 6	2.50c 11 7 0
Sheets, galvanized, 24 gage, corrugated	2.96c 13 12 6	3.01c 13 13 9	3.01c 13 13 9	3.43c 15 12 0
Bands and strips	2.17c 10 0 0	1.38c 6 5 0	1.38c 6 5 0	1.49c 6 15 0
Plain wire, base	2.12c 9 15 0	1.71c 7 15 0	1.71c 7 15 0	1.67c 7 12 0
Galvanized wire, base	2.93c 13 10 0	2.17c 9 17 6	2.17c 9 17 6	2.20c 10 0 0
Wire nails, base	2.39c 11 0 0	1.80c 8 3 9	1.80c 8 3 9	1.87c 8 10 0
Tin plate, base box 108 pounds	$ 4.37 0 18 0	....	....	$ 6.79 1 8 0

*Francs

Domestic Prices at Works or Furnace—Last Reported		Francs		Francs		Marks
Foundry No. 3 Pig Iron, Silicon 2.50—3.00	$16.01 3 6 0	$16.60	450(2)	$16.68	600	$18.51 78
Basic pig iron	15.76 3 5 0	18.96	485(1)	16.96	610	20.88 88
Furnace coke	3.52 0 14 6	5.87	150	5.14	185	5.11 21.50
Billets	30.11 6 5 0	23.07	590	24.33	875	28.71 121
Standard rails	1.79c 8 5 0	1.46c	810	1.63c	1,250	1.51c 140
Merchant bars	1.68c 7 15 0	1.33c	740	1.42c	1,090	1.52c 141
Shapes	1.71c 7 17 6	1.26c	700	1.22c	940	1.49c 138
Plates, ship, bridge and tank	1.87c 8 12 6‡	1.54c	855	1.46c	1,125	1.71c 158
Sheets, black, 24 gage	2.28c 10 10 0	2.92c	1,620	2.34c	1,800	2.43c 225
Sheets, galvanized 24 gage, corrugated	2.96c 13 12 6	3.69c	2,050	3.84c	2,950	3.78c 350
Plain wire	2.12c 9 15 0	1.94c	1,075	2.08c	1,600	2.48c 230
Bands and Strips	2.17c 10 0 0	1.51c	840	1.72c	1,325	1.72c 164

*Middlesbrough; †Scotch foundry iron; ‡delivered; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 14s 6d ($3.52) f. o. b. Ferromanganese £21 13s 0d ($105.00) delivered Atlantic seaboard, duty-paid. German ferromanganese £15 0s 0d ($72.90) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semifinished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

an inquiry covering 1000 tons of steel. The United Steel Co. operating rail mills in that area some time ago booked a large contract for rails with an English line. The order books have now been fortified by contracts from the colonies and South America, and it is hoped that regular operations will be maintained through the year. It is stated there are more men employed at Workington than at any time during 1928.

Activity of the steel industry reflects upon the local furnaces producing pig iron, and a much better tone prevails. Stocks accumulated over Christmas and the inventory period, but these have been wiped out and the output from furnaces is taken up by market requirements.

The market at Middlesbrough has a lively tone, although mainly on home account as the export trade shows little sign of expansion. According to reports inquiries are circulating from America for hematite, an interesting statement in view of the cable received from IRON TRADE REVIEW this week stating that the American producers are seeking higher tariffs on pig iron.

While there has been more inquiry for pig iron in the Midland district, traders are a little pessimistic. About this time each year there is generally a spurt of buying owing to a necessary replenishing of stocks and quite a number of authorities in the trade have decided they will not be led away by false hopes of revival. Pig iron buying, while certainly on a heavier scale than before Christmas, is still restricted and few foundries show desire to contract over a period. Derbyshire furnacemen have made £3 ($14.55) the base price for No. 3 foundry, with some firms charging £3 1s ($14.79). Northampton can be bought at £2 15s ($13.33) and this cheap iron finds a market in Middlesbrough and Scotland.

Merchants handling billets find difficulty in getting orders either for British or Continental steel. There is a difference of only 5s ($1.21) in the price. As English billets can be bonught at £6 5s ($30.31). Specifications for steel bars are also difficult to secure owing to depression in the consuming industries. The liveliest section is probably the branch supplying special sheets to the motor and motorcycle trades, which are in a vigorous state. Commercial motor building has grown considerably in Birmingham of late years, and a good deal of steel is needed for axles and other parts. This automobile activity brings with it a good demand for machine tools. Better conditions in the steel trade are always reflected in the sales of heavy steel scrap. Some good business has been done and as much as £3 10s ($16.97) paid for delivery into South Wales.

The tin plate trade at a meeting next week will consider the question of higher prices. At present the base is 18s ($4.37) to 18s 3d ($4.43) and the position is rather quiet. Export inquiry comes from the Continent, the Far East and South America. The output has advanced to 70 per cent and many mills have good order books for three or four months ahead. The turnover for last year, as far as the export trade is concerned, is well above that of 1927, although December was rather a poor month.

Galvanized sheet makers maintain a strong position and nearly all have agreed this week to make £13 12s 6d ($66.06) the minimum for 24 gage. New business has been taken for delivery in March. Overseas inquiry is fairly good, except with South and Central America, which have not come into the market this year. In 1928 the largest buyer was India, with Australia a good second. But Canada took twice as much as last year as she did in 1927.

French Steel Market Has Favorable Outlook

PARIS, Jan. 18.—(*European Staff Service*)—The position of the iron and steel trades in France is satisfactory. It is expected the Poincare cabinet will remain in power until the reparations question and revision of the Dawes plan are settled. Of course, these questions are not only to be regarded from the political aspect, but also from the standpoint that they have a considerable influence on economic conditions.

The Loucheur bill for the construction of houses is beginning to have its effect, as numerous inquiries for steel are being circulated in the Paris district. A revival of shipbuilding activities is expected, due to the passing of the naval program. The automobile industry is active. For these reasons it is expected that the iron and steel industries will enjoy an active year and register a larger volume of orders than during 1928.

Franc—3.91c

With regard to prices, it is anticipated that the present level will not be much increased, and that the comptoirs will exert a moderating influence on any tendency toward unreasonable increases. During the past week the wire rod comptoir refrained from endorsing an increase in the base price of wire rod, although the demand for this commodity is considerable, and notwithstanding the fact that the export basis price has been raised from £6 2s 6d ($29.80) to £6 5s ($30.25) f.o.b. Antwerp.

Producers of hematite pig iron have definitely refused to form a domestic comptoir, but they have renewed their agreement until Dec. 31 this year. On the other hand, negotiations are being continued for the formation of an export syndicate for hematite pig iron. It is announced that the firm of De Wendel has blown in an additional blast furnace stack at Hayange.

The price of merchant bars shows great firmness and ranges from 740 to 760 francs ($28.75 to $29.55) in the east, while the average is 760 francs ($29.55) in northern France. Negotiations still are going on for the formation of a plate and sheet syndicate. Heavy plates are quoted at from 830 to 840 francs ($32.35 to $32.70), medium-sized sheets at between 870 and 920 francs ($33.90 and $35.85), while the fine sizes range from 1120 to 1200 francs ($43.70 to $46.75). The wire products department is firm. The structural steel syndicate has maintained its price for beams, but the price of semifinished steel has been modified, an increase of 30 francs ($1.17) per ton having been decided upon for slabs and 25 francs (90c) for sheet bars.

Larger Coke and Pig Iron Units Increase German Steel Profits

LONDON, Jan. 18.—(*European Staff Service*)—Since its foundation the United Steelworks Corp. of Germany has made continued progress, increasing its production of coal, coke, by-products, iron and steel, exporting more, and at the same time realizing considerable economies in operating costs. Perhaps in no division has methodical organization given more decisive results than in the collieries. In 1926, previous to the formation of the combine, 51 collieries were producing monthly about 2,200,000 metric tons of coal. In October, 1928, 34 collieries yielded 2,316,000 tons. This result has been obtained by closing down uneconomical mines and adopting the most up-to-date methods in collieries favorably situated. Not only has production increased by 50 per cent in these collieries in the past two years, but at the same time the number of workmen has decreased. March 31, 1927, the number of men was 89,718; this dropped to 82,404 by Oct. 1, 1928. In the same period the number of staff employes decreased from 5148 to 4988. The output per man per shift has risen from 1171 kilos in 1926 to 1275 kilos at the end of 1928.

Considerable progress also has been made in production of coke. Since its establishment the United Steelworks Corp. has invested about 100,000,000 marks ($28,830,000) in its collieries, and most of this has served to develop coke oven plants. In the 2½ years of its existence the company has erected 894 coke ovens, with annual capacity of about 5,000,000 metric tons. These new ovens are in addition to the 4293 ovens which previously existed; they are considerably larger than the older ones, with average annual capacity of 5000 tons, against 1800 tons for the old types. Some can produce 10,000 tons per

(*Concluded on Page* 441)

Roberts Portable Oven Co., Chicago, has changed its name to Black Diamond Oven Co.

Here and There in Industry

Timely Information Which Records Developments in Various Lines of Productive Enterprise

LINCOLN NIAGARA CORP., North Tonawanda, N. Y., has leased the plant in that city formerly operated by the Niagara Radiator & Boiler Corp. and will manufacture cast iron house heating boilers and radiators. The new corporation has purchased the business and assets of the old Lincoln Radiator Corp. Willett W. Wetmore is president and general manager of the new company, Edward C. Stephen vice president and sales manager and Elmer S. Hering secretary and treasurer. Mr. Wetmore and Mr. Hering formerly were with the Niagara corporation, while Mr Stephen formerly was vice president of Hart & Crouse, Utica, N. Y.

* * *

DURALOY CO., Pittsburgh, announces that its Chicago office is now located at 608 South Dearborn street, under the direction of Benjamin S. Sklovsky, district sales manager.

* * *

ANCHOR CAP CORP., Long Island City, N. Y., manufacturer of food container equipment, announces it will acquire the American Metal Cap Co., Brooklyn, N. Y.

* * *

C F. PEASE CO., Chicago, manufacturer of drafting room supplies, has established a sales office at 501 South Spring street, Los Angeles, in charge of Ralph S. Gibson.

* * *

NATIONAL EQUIPMENT CO., Springfield, Mass., is building electric riveting machinery of special designs to suit various lines of production. One is being built for the Moore Drop Forging Co., Springfield, for delivery shortly.

* * *

BETHLEHEM FOUNDRY & MAchine Co., Bethlehem, Pa., has elected officers for 1929 as follows: Chairman, W. A. Wilbur; president, J. George Lehman; vice president, Robert E. Wilbur; treasurer, G. Ernest Finck; secretary, I. E. Krause.

* * *

FRED PABST CO., Milwaukee, a subsidiary of the Pabst Corp., manufacturing galvanized black brass nipples and other specialties for the plumbing and steamfitting trades, has been taken over by Frank H. Wiedeman, second vice president and general manager, who will continue the business with associates in a new corporation, the Frank Weideman Co. The plant will remain in one of the buildings of the old Pabst brewery, now a general industrial community group.

* * *

CARPENTER STEEL CO., Reading, Pa., has appointed Horace T. Potts & Co., Philadelphia, warehouse distributors for carbon and alloy tool steels for the Philadelphia and eastern Pennsylvania districts. Stock will be carried at Philadelphia.

* * *

CANADIAN PRATT & WHITNEY AIRCRAFT CO. LTD., Montreal, Que., has been formed as a subsidiary of the Pratt & Whitney Aircraft Co., Hartford, Conn. A plant is being remodeled for the immediate production of airplane parts. James Young is president of the new company.

* * *

MURRAY IRON WORKS CO., Burlington, Iowa, has appointed the C. B. Davis Engineering Co., Brown-Marx building, Birmingham, Ala., and Flickinger, Meyers & Rudolph, 129 West Second street, Los Angeles, district sales representatives for turbines.

* * *

HOUDAILLE CORP., Hershey Corp. and Oakes Products Corp., manufacturers of automotive material have approved consolidation into the Houdaille, Hershey Corp. Claire L. Barnes, president of the three companies, will be president of the consolidated concern.

* * *

UNIVERSAL BORING MACHINE CO., Hudson, Mass., has purchased the wartime plant of the General Electric Co. at Hudson, to be used in expansion of manufacturing activities. The plant has been closed five years and machinery will be needed for its equipment.

* * *

MOSSBERG PRESSED STEEL CORP., Attleboro, Mass., has elected the following directors: Frank Mossberg, D. E. Makepeace, A. E. Sparks Jr., R. V. Olson, J. Lee Mitchell, S. O. Bigney, George E. Nerney, S. J. Clulee and Carl G. Larson. Frank Mossberg was elected president, A. E. Sparks Jr. treasurer, D. E. Makepeace vice president, and R. V. Olson secretary. An extra dividend of 8 per cent in addition to the regular 8 per cent was voted.

* * *

T L. SMITH CO., Milwaukee, manufacturer of heavy duty paving outfits and concrete mixers, has acquired the Kwik-Mix Concrete Mixer Co., Port Washington, Wis., maker of small mixers, to round out its line. The Port Washington factory will be continued, but offices will be moved to Milwaukee.

* * *

AMERICAN PLAN ASSOCIATION, Cleveland division, has elected the following members of the board of governors for a three-year term: George S. Case, Lamson & Sessions Co.; F. G. Hodell, Chain Products Co.; H. M. Lucas, Lucas Machine Tool Co.; W. L. Seelbach, Forest City-Walworth Run Foundries Co.; S. D. Wright, Atlas Car & Mfg. Co.

* * *

GENERAL REFRACTORIES CO. has opened a branch office at 742 Russ building, San Francisco, in charge of W. E. Dornbach. Mr. Dornbach has been associated with the Philadelphia office of the company for several years and previous to that was manager of the Baltimore works, which specializes in the manufacture of magnesite and chrome refractories.

* * *

NORTHERN BLOWER CO., Cleveland, has taken a contract for installing a dust arrester system for the polishing and grinding shops of the Cloyes Gear Works, Cleveland. The company has just completed installing a fume and dust removal system in the chromium plating, polishing, grinding and buffing departments of the Republic Brass Co., Cleveland, and a dust collecting system in the sandblast and tumbling mill departments and core oven shop of the Forest City Foundry, Cleveland.

* * *

MONARCH ALUMINUM WARE CO., 4613 Payne avenue, Cleveland, has acquiried 100,000 square feet of floor space in the Power Warehousing Terminal building, West Ninty-fourth street and Detroit avenue, and the manufacturing facilities of the Club Aluminum Ware Co., at Baltimore and Chicago. These plants will be consolidated at the new Cleve-

land plant. The Monarch company will specialize in the manufacture of permanent mold castings and also will operate a sand foundry. Polishing and assembling departments will be installed.

* * *

KINITE CORP., Milwaukee, has appointed the Bissett Steel Co., with offices at Cleveland, Cincinnati and Pittsburgh, and the H. Boker Co. Inc., New York and Boston, distributors of kinite steel alloy.

* * *

ELJER CO., Ford City, Pa., maker of sanitary ware, has purchased the plant and business of the National Sanitary Co., Salem, O. The Salem plant will be operated as a branch. The company also is planning an expansion program.

* * *

DOMINION WHEEL & FOUNDRIES LTD., Toronto, Ont., and Winnipeg, Man., will exercise its option taken several weeks ago on eight acres at Calgary, Alta., adjacent to the Manitoba Rolling Mills Ltd., and will erect a new plant.

* * *

AUBURN AUTOMOBILE CO., Connersville, Ind., has bought the business and plant of the Central Mfg. Co., adjacent to its plant and will consolidate the two. The purchased company was a source of bodies for Auburn.

* * *

HUNT & DORMAN MFG. CO., Cleveland, manufacturer of metal stampings, has moved to its new plant at 5100 St. Clair avenue, where it has 40,000 square feet of floor space and has enlarged its facilities. B. F. Hannum is president.

* * *

NEW YORK CAR WHEEL CO., Buffalo, maker of railroad car wheels, has purchased the Brown Car Wheel Works, also of Buffalo. It is planned to operate the Brown plant for a time, after which it will be turned into a storage plant for the New York company.

* * *

J. D. ADAMS MFG. CO., Indianapolis, has been incorporated, succeeding a partnership under the name of J. D. Adams & Co., builder of road equipment. The company was founded in 1885 by the late J. D. Adams, after he had invented the adjustable leaning wheel road grader.

* * *

UNITED STATES FOUNDRY CO., Los Angeles, has been organized by H. F. Long and has leased the plant of the Holbrook, Merrill & Stetson Foundry, 6917 McKinley avenue. The new company will make gray iron castings, specializing in stove and heater work. They will also manufacture aluminum castings and sanitary ware.

* * *

SUMMIT BRASS & BRONZE CO., Akron, O., and the Newton Foundry Co., Barberton, O., have been consolidated into the Summit-Newton Foundry Co., 241 East State street, Barberton, O. The firm is equipped to manufacture iron, semi-steel, brass, bronze and aluminum castings. John Zamarik is president, John Donald vice president, John Metzler secretary, and John Binns treasurer.

* * *

LLEWELLYN IRON WORKS, Baker Iron Works, and Union Iron Works, all of Los Angeles, have been combined to form the Consolidated Steel Corp. The officers are: Lee A. Phillips, chairman of the board; Waller Taylor, president; Roese Llewellyn, chairman executive committee; Ford J. Twaits, executive vice president; Milton Baruch, Harry S. Hitchcock, and Robert Miller, vice presidents; Lynd C. Rollins, secretary and O. Rey Rule, treasurer.

* * *

DEVON MFG. CO., Springfield, Mass., manufacturer of electric refrigerators, with assembly plant at Springfield and main office at Boston, plans a plant for the manufacture of parts. Previously parts have been made on contract at several other places. The company's experimental plant at Worcester has been moved to Springfield and it is planned to consolidate manufacturing operations there. C. L. Ward is general manager.

* * *

BUCKEYE STEEL CASTINGS CO., Columbus, O., has re-elected its officers, as follows: President and general manager, J. C. Whittridge; first vice president, John G. Deshler; second vice president, A. H. Thomas; third vice president, George F. Johnson; secretary and treasurer, Arno Eberlin. Directors elected are: Alexander C. Brown, John G. Deshler, C. B. Goodstead, T. P. Linn, W. F. Nash, A. H. Thomas and J. C. Whittridge.

* * *

FAIRBANKS, MORSE WATER SUPPLY CO. has been organized as a subsidiary of Fairbanks, Morse & Co., Chicago, to develop equipment for ground water supply. W. S. Hovey, president of the parent company, is chairman of the board; S. T. Kiddoo, vice president and treasurer of the parent company, is president, and P. D. Boelwe is vice president and general manager. Equipment manufactured by the subsidiary will utilize centrifugal and turbine pumps, electric motors and diesel engines manufactured by Fairbanks, Morse & Co.

* * *

HORACE T. POTTS & CO. have been appointed warehouse distributors of carbon and alloy tool steels manufactured by the Carpenter Steel Co., Reading, Pa.

* * *

MARTIN-BULWA IRON & METAL CO., 2034 Southport avenue, Chicago, has acquired control of the Cohn Iron & Steel Co., the company now taking the name of Martin-Bulwa Iron & Metal Co.

* * *

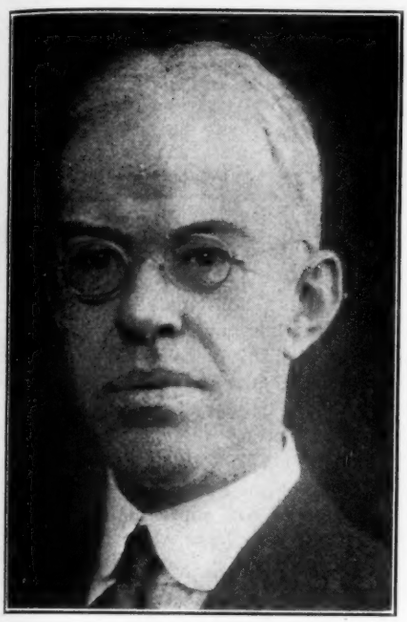
PITTSBURGH GAGE & SUPPLY CO., seller of valves, fittings and other industrial supplies, and the Gainaday Electric Co., have elected the following directors: C. E. Beeson, J. W. Henry, Mark R. Craig, Henry W. Heedy, John P. Kraft, Sherman C. Parker, D. M. Bryar and C. B. Barton. Officers for the Pittsburgh Gage & Supply Co. were elected as follows: President, C. E. Beeson; vice president and general manager, C. B. Barton; treasurer, J. G. Reuter, and secretary, W. H. McBridge. Gainaday Electric officers elected were: President, C. E. Beeson; vice president and general manager, C. B. Barton; treasurer, William F. Smail; secretary, W. H. McBride.

* * *

DOLOMITE PRODUCTS CO. INC., Rochester, N. Y., has approved the plans for increasing capital from $150,000 in preferred stock to $300,000, and increasing common stock from 3000 of $5 par value to 30,000 without par value. Five shares of the new common will be exchanged for each share of the old. The company has just completed the best year in its history, and production totaled 350,000 tons. The company has total assets of approximately $1,000,000. The expenditure of $500,000 for an east side plant was approved. The work is being pushed so that the plant will be in operation by May 1. Stockholders re-elected John H. Odenbach, president and treasurer, Mr. Odenbach is general manager of the company. Other officers elected were Matthew P. Odenbach, vice president, and Frank J. Waddell, secretary. The directors elected were Fred J. Matthew, Charles Peter and John H. Odenbach, Frank J. Waddell, Harvey M. Clarke and Archie F. Love. Mr. Clark is general superintendent of the company.

Obituaries

SAMUEL WYLIE MILLER, 62, international authority on welding and consulting engineer since 1921 of the Union Carbide & Carbon Research Laboratories, Long Island City, N. Y., died Feb. 3 at his home in Hollis, L. I. He will be buried at Columbus, O., where he once had lived. Mr. Miller was a native of New York and received a degree in mechanical engineering from the Stevens Institute of Technology in 1887. He was



S. W. MILLER

credited with having been among the first members of his profession to visualize the possibilities of oxyacetylene welding and he did much to develop and apply this process in a practical way. He wrote several books on welding and spoke on different phases of the art of welding at numerous conventions of technical organizations. He was past president, member and director of the American Welding society and held memberships in the following technical bodies: American Society for Testing Materials, the American Society of Mechanical Engineers, the American Society for Steel Treating, the American Iron & Steel institute, Master Boilermakers' association, the Iron and Steel institute in Great Britain, the Institute of Metals and the Institution of Welding Engineers.

He started his industrial career as special apprentice in the shops of the Pennsylvania railroad at Columbus, O., where he later returned as master mechanic, after serving in that capacity in the road's shops at Logansport, Ind., and also at Indianapolis. He then became identified with the American Locomotive Co., being stationed at Dunkirk, N. Y., and later at Providence, R. I. In 1910, when the welding industry was in its infancy, Mr. Miller founded the Rochester Welding Works, Rochester, N. Y.

Mr. Miller was the donor of the Miller gold medal, established by him early in 1927 and which is awarded annually by the American Welding society in appreciation of work of outstanding merit in advancing the art and science of welding.

* * *

A. Joseph Freedman, 62, in the scrap iron and steel business at Buffalo for many years, died recently.

* * *

Oliver W. Katterhenry, president, National Meter Co., Cincinnati, died recently in an automobile accident.

* * *

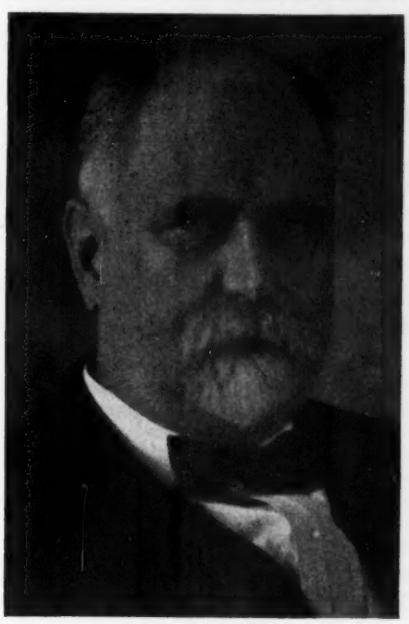
B. T. Bechtel, 49, Chicago district sales manager of the Youngstown Sheet & Tube Co., Youngstown, O., and formerly general sales manager of the Steel & Tube Co. of America, died Feb. 1, following a short illness. He had been associated with the steel industry for 25 years. Mr. Bechtel was a native of Omaha, Nebr., and after locating in Chicago was identified with the Chicago & Western Indiana railroad for several years. He joined the Mark Mfg. Co., Chicago, in 1903, as a salesman and for six years was in charge of the Pittsburgh district sales office of that company. He returned to Chicago as assistant manager of sales for the Steel & Tube Co. of America, which had absorbed the Mark Mfg. Co., and in 1922 he was appointed general sales manager of the Steel & Tube company. When the latter company was purchased by Youngstown Sheet & Tube Co., Mr. Bechtel was made Chicago district manager of the Youngstown company.

To Buy McKinnon Plants

Buffalo, Feb. 5.—Stockholders of the McKinnon Industries, operating two plants in Buffalo and one in St. Catherines, Ont., will vote Feb. 25 on a proposal to sell the business to General Motors Corp. McKinnon stockholders would receive three shares of General Motors stock for each four of their holdings in the smaller company. Approval of the plan is anticipated. The plants manufacture automobile gears, axles and parts, drop forgings and malleable castings.

Donner Steel Earns More

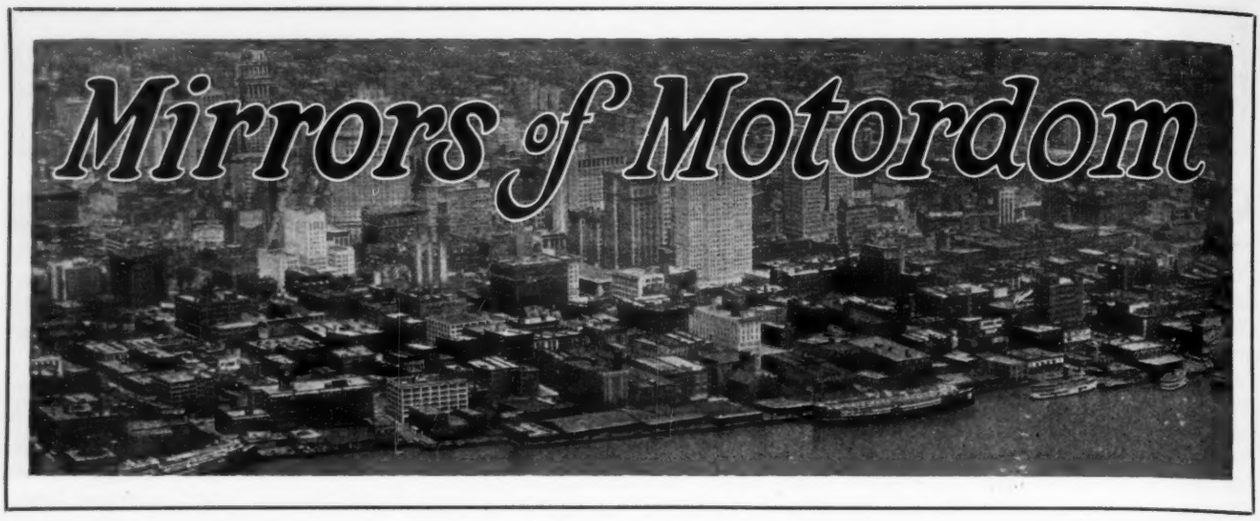
Buffalo, Feb. 5.—Donner Steel Co. reports net profits of $1,343,272 after deductions for interest, federal taxes, depreciation, etc., for the year ending Dec. 31, 1928, equal after dividend of 8 per cent on the prior preferred stock to $2.38 a share on 451,850 no par shares of common stock. Net profits for 1927 amounted to 35 cents a share on this common. Net earnings for 1928 before deductions were $3,047,838, compared with $1,724,709 in 1927. Conditions at this time are satisfactory, William H. Donner, company president, declares.



DR. LEONARD WALDO
Whose death, Jan. 25, was noted in the Jan. 31 issue of IRON TRADE REVIEW

Ryerson Earnings Gain

Joseph T. Ryerson & Son Inc., Chicago, in 1928 had net earnings of $1,824,000 after all charges, or equal to $4.56 a share on 400,000 shares of capital stock. This compares with a net of $1,249,000 or $3.12 per share in 1927. Gross sales were $30,696,000 in 1928 against $28,896,000 in 1927.



Auto Schedules, in Detail, Make 1929 Look Bright

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Steel Specifications Rise Sharply; Scrap Breaks

Detroit, Feb. 5

EVIDENCE is piling up that the automotive industry is not guilty of the indictment, as charged in some quarters, that it has set its sights too high for 1929, thereby to over-shoot the mark. The impression gradually is gaining ground that several bulls eyes are to be hit. Motordom's range finders are fairly accurate, and 1929 seems destined to record spectacular achievements. These promise at this time to eclipse the 1928 record output of 4,630,000 cars and trucks in the United States and Canada.

Mounting specifications for steel (sheets, strips, cold finished bars, etc.,) as well as castings, coupled with hurried calls for expedited deliveries, heighten expectations. Tentative schedules have been replaced in numerous instances by actual schedules for which actual tonnages are named, and as a result, for the first time in four or five years, various sheet and other steelmakers have sizable backlogs. Some auto makers have been forced to abandon their low inventory policy and forego their hand-to-mouth buying method in order to be sure of deliveries in the first half period, when the peak of the 5,000,000 to 6,000,000 1929 production should be reached.

* * *

OUT of a clear sky recently Ford announced a 6-day week for equipment, retaining the 5-day week for men. Not all the additional men have been hired. Already, output has been stepped up to between 7300 and 7500 daily. Calls immediately went out for the extra material needed but not anticipated. Early last week, one full finished sheetmaker was asked to furnish 200 to 300 tons of full finished sheets additional by Feb. 1.

Chevrolet, too, is short of material and is making feverish calls to supply deficiencies. Its output of 1,200,000 units last year to Oct. 15, plus 25,000 from Dec. 15 to 31, a total of 1,225,000, should be exceeded this year by at least 25,000. About 90,000 were produced in January; 125,000 minimum and possibly 140,000 are planned for February. Calls recently went out for material on the basis of 6000 daily.

Dodge is known to be short on 72 to 75 different items. In 10 months last year it made approximately 140,000 cars and through this year's price reductions is expected to exceed that. Buick is gradually increasing. It made over 200,000 last year. Last month it made 13,008, and has 14,000 plus scheduled for February. Cadillac-La Salle, which made 40,000 last year, plans on a 50,000-car output in 1929. Chrysler made 91,293 in nine months last year. Great increases are planned for this year. De Soto shipments of more than 35,000 in 1928 will, under the Chrysler regime, mount rapidly if automobile show sales are any criterion.

Durant shipped 115,243 last year and its new models with four forward speeds seem to be meeting with popular favor. Graham-Paige made 73,195 last year. It made 5670 in January. On that basis, 68,040 would be the total for 1929, but a much larger output is anticipated, increasing monthly from now on. Hudson-Essex shipped 282,207 units in 1928. At least 500,000 are planned for 1929; 109,000 in first quarter and more than 150,000 for second quarter. Hupmobile shipped 65,857 in 1928, and while only 3687 went out in January, monthly increases are contemplated for the first half, at least.

Lincoln's output of more than 5500 last year will probably be exceeded this year. Marmon, which made 12,596 cars in nine months last year, expects to make at least 50,000 when its new Roosevelt gets into production. Oakland-Pontiac made 260,246 last year and will make at least 310,000 this. Pontiac soon will be on a 700 daily basis. Oldsmobile shipped 86,269 last year, 7460 in January, and has 10,800 scheduled for February. Packard's shipments for 12 months totaled 49,909 and for January 4604. Plymouth's sales of 46,397 for nine months last year should grow in 1929, when handled by Dodge dealers as planned. Reo shipped 47,170 cars and trucks in 1928, and 4000 in January.

Studebaker made 70,274 in nine months last year. It has abandoned its Detroit plant, but concentrating at South Bend, Ind., it has at least 40,000 scheduled for the first quarter. While not in immediate Detroit territory, Willys-Overland plans on 500,000 for 1929, 130,000 for first quarter and 170,000 for second quarter or from 1200 daily in January to 1500 daily in February. About 77

per cent will be Whippet 4's, 14 per cent Whippet 6's and 9 per cent Willys-Knights. Above figures show in some measure why Michigan is responsible for 80 to 85 per cent of the country's cars and why more than 1,500,000 tons of steel is consumed by its automobile industry each year.

* * *

IN THE above resume, nothing is said of cars made outside of Michigan, such as Auburn, Chandler, Erskine, Franklin, Gardner, Jordan, Moon, Nash (making 620 cars daily in January), Peerless, Pierce-Arrow, Stearns-Knight, Stutz, etc., accounting for 158,810 cars in nine months last year, plus 5918 cars unidentified by the national automobile chamber of commerce. This total, 164,728 for nine months, probably means over 200,000 for the year.

* * *

MAKERS are fully cognizant, however, that the year, particularly the latter half, will be highly competitive. An easy sail may be enjoyed during the first half but the last half may contain some interesting developments in the way of price adjustments. Makers realize fully, too, that each market open must be exploited to the limit. All are laying plans for increased exports, particularly to South America, where suitable road building is in progress. All are trying further to popularize the 3 and 4 car per family idea. They are endeavoring to supplant ponies with cars in the cowboy country. They point to 27,000,000 bicycle owners in Germany, England and France as potential automobile buyers. No stone will be left unturned to find a market for America's cars.

* * *

FORD Model T is very much alive, a world-wide census of Model T's on wheels giving a total of about 8,000,000. This possibly explains why large orders still are being placed for replacement. The Lakey Foundry & Machine Co., Muskegon, Mich., has just received an order from Ford for 300 to 400 Model T cylinder blocks daily for the rest of 1929. In some sections a few Model T's still are being assembled, but for the most part, these castings are for replacements. Ford is retaining his own cylinder block capacity for Model A. Many other orders for Model T parts are being placed from time to time. One recently placed with the Muskegon Piston Ring Co. calls for 100,000 piston rings a day.

* * *

SPEAKING of replacement parts, an interesting bit of gossip is to the effect demand for replacement parts on Model A are exceedingly disappointing. For two months following Oct. 29, 1927, the date of the appearance of the first of the new cars, little or no replacement business was expected. A gradual increase from then onward, month by month, was planned for and expected, based on experience gained during the production of 15,000,000 Model T's. This replacement demand, however, has fallen short of expectations.

* * *

THREE new cars loom on the horizon—two eights and probably a six. The latter is to be made by Buick, so it undoubtedly will not be a four, General Motors having left the 4-cylinder field. Nobody knows what it will be christened, prior to its debut in July. The Viking-8 (Oldsmobile) was viewed by dealers at Lansing, Mich., last week. The Roosevelt is to be a straight 8 by Marmon. This 70-horsepower engine has a bore and stroke 2¾ x 4¼ inches with a piston displacement of 201.9 cubic inches and an S. A. E. rating of 24.2. It will sell for less than $1000.

* * *

WITH the Newton Steel Co. planning in April to begin the construction of its new sheet mills near Monroe, Mich., reports are again current that George Fink, head of the Michigan Steel Corp., will proceed with the construction of a bar or strip mill. The Michigan Steel Corp. now operates eight sheet mills at Ecorse, Mich., 15 miles south of Detroit. Less credence is now placed in the report that the Fisher Body Corp., which is friendly to the Newton company, will erect a body plant adjacent to the latter's new sheet mills.

* * *

WHAT happens when an automobile company dumps 20,000 tons of scrap on the market? Ford did it last week, with most steel scrap grades in the Detroit market surrendering 50 cents to $1 per ton overnight. To an extent, the scrap weakness at Detroit is discounting heavy February offerings. For example, Chevrolet made 25,000 cars in December, 90,000 in January and is scheduling 125,000 to 140,000 for February. Its scrap offerings will expand commensurately.

Steel Furniture Orders Set New High

Washington, Feb. 5.—New orders for steel furniture in December totaled $3,610,645, setting a new high record, according to the department of commerce. The total for 1928 exceeded 1927. Following are comparisons:

	Business Group		Shelving	
	Orders received	Shipments	Orders received	Shipments
	(In Dollars)			
1926				
Total	31,393,171	31,429,140	7,340,351	7,837,017
1927				
Dec.	2,850,314	2,740,602	619,276	577,910
Total	30,760,343	31,105,789	7,351,122	7,264,282
1928				
Jan.	3,248,165	2,712,663	768,748	680,264
Feb.	3,295,861	2,908,527	741,310	681,999
March	3,283,329	3,169,351	841,098	813,607
April	2,915,344	3,065,637	740,658	716,104
May	3,085,638	3,213,291	732,921	768,988
June	2,764,085	3,009,229	727,060	720,253
July	2,594,216	2,515,482	713,330	722,516
Aug.	2,619,234	2,564,638	863,422	836,105
Sept.	2,689,009	2,754,135	799,850	678,422
Oct.	3,192,927	3,158,998	958,726	953,804
Nov.	*2,675,664	*2,854,312	875,354	915,640
Dec.	3,610,645	3,117,139	828,555	791,376
Total	35,974,117	35,043,412	9,601,032	9,297,078

Larger Units Increase German Profits

(*Concluded from Page* 436)

year. Organization of the new plant is such that output per worker per shift has increased threefold. The new cokeries are close to coal mines and iron and steelworks, thus effecting a substantial saving of freights. The methodical utilization and marketing of by-products, through the agency of the Ruhr Gas Corp. and the Ruhr Chemical Co., in which the United Steelworks has a large holding, is an additional source of profit.

The program of reorganization of the coking plant is nearly concluded, and the annual capacity of production will exceed 11,000,000 metric tons. The last battery of ovens to be lighted was that of the Dortmund and Noerde works, and it is claimed to be the most up-to-date cokery in Europe. The coke ovens of the Noerde works constitute a large central plant. The battery consists of 65 ovens of the Koppers-Esson system and has a capacity of 600 tons in 24 hours. The actual coking operation in these ovens takes only 16 to 18 hours, against 22 to 24 hours in the old types. Still larger ovens are being erected near the Nordstern coal mine, on the Rhine-Herne canal. This will be the central coking plant for three coal mines, and its daily capacity will be 3600 tons.

Developments in the blast furnace plants of the United Steelworks Corp. have been mostly pushed at Dorstfeld, where modern stacks have been erected. These furnaces, of a theoretical capacity of from 750 to 800 tons, produce as much as 1000 tons per day. They replace furnaces whose capacity did not exceed 350 tons. The new plant consists of five stacks, four of 750 tons nominal capacity and one of 800 tons. The height of the stacks reaches 130 feet, including the superstructure.

The will of the late E. E. Baker, president of the Kewanee Boiler Corp., Kewanee, Ill., provides $1,000,000 for parks, playgrounds, education of young men and women, and for crippled children.

Men of Industry

(*Concluded from Page* 434)

named manager of its Worcester, Mass., sales office. Mr. Hastie has been with the company since 1913, originally at the Providence, R. I., office. He more recently has been sales supervisor of the New England branch at Boston.

* * *

C. M. Adams, Bridgeport Brass Co., Bridgeport, Conn., has been placed in charge of the new office of the company recently established in the Third National bank building at Dayton, O.

* * *

E. T. Weir, president of the Weirton Steel Co., Weirton, W. Va., is ill at his Pittsburgh home. He took sick shortly after the death of his brother, David M. Weir, vice president of the company.

* * *

Bertram B. Caddle, assistant for seven years to William A. Willis, manager of the Copper & Brass Research association, New York, has been elected secretary by that body's board of directors. He succeeds John Fellows Gowen, resigned.

* * *

H. E. Melin has resigned as chief engineer of the Youngstown Foundry & Machine Co., Youngstown, O., to join the sales organization of the Aetna-Standard Engineering Co., Youngstown. Mr. Melin was graduated from Chalmers university, Gothenburg, Sweden, and formerly was associated with the Youngstown Sheet & Tube Co.

* * *

Alexander V. Mueller recently resigned as chief engineer of the Kingsford Foundry & Machine Works, Oswego, N. Y., to become associated with a pump manufacturer at Salem, O.

William P. Gargan succeeds Mr. Mueller as chief engineer of the Kingsford works. He joined that organization three years ago, having been previously identified with Goulds Pumps Inc., Seneca Falls, N. Y.

* * *

E. S. Fickes, Pittsburgh, vice president in charge of engineering for the Aluminum Co. of America, Pittsburgh, was elected a director of the company at the recent meeting of the board of directors. W. C. Neilson, Philadelphia, in charge of the bauxite interests of the Aluminum company, was elected a vice president.

* * *

L. I. Bregman, president of the Price Iron & Steel Co., Chicago, is in Florida recuperating from a recent illness.

* * *

E. M. Weinfurtner, secretary and treasurer of the Ashland Fire Brick Co., Ashland, Ky., has been elected first vice president and chairman of the executive committee of the newly-organized North American Refractories Co., as noted on page 291 of the Jan. 24 issue of IRON TRADE REVIEW.

E. H. Gartrell, president of the Ashland Fire Brick Co., is to be vice president in charge of the Ashland, Ky., division of the North American Refractories Co.

* * *

H. V. Jamison, advertising manager of the American Sheet & Tin Plate Co., Pittsburgh, has been appointed chairman of the advertising committee of subsidiary companies of the United States Steel Corp. Advertising of these companies will be directed through two divisions, at Pittsburgh and Chicago, under the general direction of the committee.

Mr. Jamison will have associated with him at Pittsburgh W. L. Schaeffer, of the National Tube Co., and R. L. Twitchell, of the Carnegie Steel Co. At Chicago he will have C. R. Moffatt, M. A. Berns and W. K. Cordes.

Organize New Alan Wood Co., with W. F. Rust as President

PHILADELPHIA, Feb. 5.—Control of the Alan Wood Iron & Steel Co. has passed to the Alan Wood Co., organized by Henry B. Rust, president of the Koppers Co., Pittsburgh, and Scott Stewart, president of W. J. Rainey Inc., New York. Stock of the newly-organized Alan Wood Co. has been exchanged for substantially all of the outstanding stock of the old Alan Wood company. The Alan Wood Co. also owns all of the stocks of the Rainey-Wood Coke Co.

Directors of the Alan Wood Co. are W. F. Rust, also president; Scott Stewart, also chairman of the executive committee; H. Lee, Donald MacArthur, Hugh F. Smith, J. T. Tierney, Roy W. Heffner, A. P. Meyer and Howard Wood Jr. The executive committee comprises Messrs. W. F. Rust, Lee, MacArthur, Stewart and Heffner. H. C. Thomas, who has been president of the Alan Wood Iron & Steel Co., is vice president of the new Alan Wood Co. and continues in charge of operations. In general, no changes in the present operating organization will occur.

The men in control of the new Alan Wood Co. all are well-known figures in the iron and steel industry. W. F. Rust is vice president of the Koppers Co., an important interest in the building, operation and management of by-product coke oven plants and formerly was connected with the Youngstown Sheet & Tube Co. Scott Stewart is president of W. J. Rainey Inc., large operator of coal properties and beehive coke ovens. H. Lee is vice president of the Koppers Construction Co. and has had considerable experience in the steel business. Donald MacArthur is vice president of the Koppers Co. and is in general charge of its eastern plants. Hugh F. Smith is counsel for the Koppers Co.

J. T. Tierney, who has had extensive experience in the management of by-product coke plants, is at present in charge of the operating companies of the Koppers Co. Roy W. Heffner is vice president of W. J. Rainey Inc. and for the past 10 years has been general manager of the Rainey-Wood Coke Co. A. P. Meyer is vice president and general manager of the Davison Coke & Iron Co., with offices in Pittsburgh.

Howard Wood Jr., formerly an officer and director of the Alan Wood Iron & Steel Co., represents the preferred stockholders on the board of the new Alan Wood Co.

Denies Sale of Ojibway

Detroit, Feb. 5.—Reports that property of the Canadian Steel Corp. Ltd., at Ojibway, Ont., across the Detroit river from this city, were to be sold have been denied at headquarters of the United States Steel Corp., at New York. It was pointed out that only recently the Canadian wire subsidiary of the Steel corporation was moved from Hamilton, Ont., to Ojibway.

National Car Adds Stock

Toronto, Ont., Feb. 5.—Stockholders of the National Steel Car Corp. have approved an increase in the number of no par common shares from 100,000 to 150,000. The new issue is to be sold at $75 per share. Orders now on hand for cars and other equipment exceed $20,000,000. Improvements under way contemplated will cost $1,500,000.

Machinery

Eastern Market Displays Brisk Buying on the Part of Two Concerns—Railroad Demand Lags—Western Activity Restricted

MANUFACTURER of printing machinery after year-end purchases returns to the market for new tools to round out its shop requirements. This and business placed by a large builder of electrical equipment has served to stimulate the eastern market. Demand coming from the railroads has not come up to expectations and few sales are reported. In the Chicago district many orders booked in December and January are just beginning to be consigned to the consumer. Weather conditions in the Northwest is slowing down activity. Railroads with purchasing departments in Chicago are displaying more interest in the market, issuing inquiries this week for a diversified line of shop equipment. Better activity is reported by Pittsburgh dealers.

New York, Feb. 5.—Further buying by R. Hoe & Co., this city, is a feature of the local machine tool market. Closing on close to $400,000 of equipment around the final days of last year, this company again came into the market a few days ago and closed on a number of machines, including several lathes. Another active buyer is the General Electric Co., which has placed a number of miscellaneous machine tools for its toolroom at Schenectady, N. Y.

The market generally has been active, with a substantial number of miscellaneous inquiries for one or two tools being closed, as well as for two or three larger amounts, such as above noted. Moreover, the new month is starting off briskly. Only in railroad demand does listlessness appear. With the exception of an inquiry by the New York Central for a shaper and an engine lathe, railroad demand is virtually absent.

Dullness prevails in both electric and overhead cranes. The past week has been as slow as at any time in recent months as far as actual orders are concerned. However, the outlook is somewhat encouraging, particularly in overhead cranes, as a substantial volume of inquiry has accumulated.

Worcester, Mass., Feb. 5.—Machine tool buying continues brisk, covering a wide range, with lathes and milling equipment leading. Automobile interests and parts makers are placing fair orders. A Connecticut interest this week placed a list for a group of brake drum turning lathes. Delivery is becoming a problem with some makers and buyers in some instances are stressing this factor. Several automatics went to a radio-maker. Metalworking shops are fair buyers. Chuck and part makers are busy. Electrical equipment makers report a good call for individual machine motors.

Chicago, Feb. 5.—Machine tool sales and inquiries moved into a lull during the week, but shipments continue unusually heavy on orders carried over from January and even from December. Severe weather is held partly accountable for a slight dip from the steady level of buying for several months. Heavy snows in Wisconsin and other parts of the Northwest have restricted activity. The outlook for railroad buying is bright. Rock Island is understood to be ready to issue a list soon, and already has asked bids on a 6-foot radial drill and a 6-inch steel squaring shears. Burlington is inquiring for an oil groover, and Chicago, Milwaukee, St. Paul & Pacific has taken bids preparatory to formal inquiry. A number of tools are pending in the Milwaukee district, including some equipment for the A. O. Smith Corp. and Allis-Chalmers Mfg. Co. Western Iowa manufacturers purchased about $5000 worth of tools during the week, and a local house closed some business in Omaha, including special equipment. A sale was closed here for a milling machine, radial drill and lathe for a Detroit plant. The advance of 5 per cent on one line of milling machines became effective Feb. 1. Deliveries are becoming even tighter. Equipment formerly promised in ten days cannot be shipped now under 30 days. Deferred deliveries have extended to all heavy lines.

Pittsburgh, Feb. 5.—Practically all machinery sellers report active business. Demand is well diversified and what it lacks in large individual orders is made up in total sales. Inquiry is steady and gives promise of continued satisfactory buying.

Cleveland, Feb. 5.—Machine tool sales have slowed down somewhat compared with the volume placed last month. Individual machines comprise the majority of entries. Buyers still are scattered. The general run of inquiry is coming from numerous industries and involves a varied line of requirements. Little buying is being done by the automotive industry. Sellers of used tools report active buying of precision and surface grinders and milling machines for immediate shipment. Inquiry is heavy for items available for immediate installation.

The treasury department has announced drawback allowance on safety razor blades manufactured by the Wade & Butcher Corp., Jersey City, N. J., with the use of imported steel.

CRANE ORDERS PLACED

150-ton electric overhead crane for standard Oil Co. of New Jersey, for installation at Bayway, N. J., previously noted as placed, went to Whiting Corp.; used 25-ton Industrial locomotive crane for Mystic Iron Works, Everett, Mass., to an unstated seller.

CRANE ORDERS PENDING

Fourteen electric cranes for a foundry for American Steel Foundries, Eddystone, Pa., as follows: Five 75-ton, four 40-ton and four 25-ton cranes, all 80-foot span, and one 10-ton gantry crane, 75-foot span.

Threaten to Barge Steel on Lake Michigan

Green Bay, Wis., Feb. 5.—Testimony to substantiate complain of Green Bay steel jobbers and various manufacturers that the rail rates on iron and steel articles from the Chicago switching district to Green Bay are unreasonable and unduly prejudicial was presented last week before Examiner Maidens, of the interstate commerce commission, by a large number of witnesses.

The Green Bay complaints objected to the spread of 11 cents as between Milwaukee and Green Bay on shipments from Chicago. Interveners from Janesville, Racine, Kenosha, and Madison, Wis., Minneapolis and St. Paul, besides Chicago and Milwaukee opposed removal of any discrimination found by increasing the rates to the cities represented.

Testimony indicated that large consumers in Milwaukee, Kenosha and Racine, Wis., have studied possibilities of shipping iron and steel from the Chicago district by water. This move has been contemplated, it was said, if there is any increase in the 9½-cent freight rate on these articles from Chicago.

E. G. Hetherington, traffic manager of the A. O. Smith Corp., Milwaukee, said his company used 285,924 tons in 1928, and if there were any attempt to disturb the present rate, the company would engage in water shipments, even if it necessitated establishment of the company's own line. He estimated the needs of the company for 1929 at 325,000 tons.

What Ford Made in 1928

Detroit, Feb. 5.—Ford Motor Co. in 1928 produced 304,191 gross tons of pig iron and 321,476 tons of open-hearth steel ingots. By-product coke production was 1,101,689 tons. By-products include 13,552,394 gallons of coal tar, 17,238 tons of ammonia sulphate, 13,661,595 gallons of motor benzol and 16,845,232,000 cubic feet of gas. Portland cement output, from blast furnace slag, was 620,075 barrels.

CONSTRUCTION and ENTERPRISE

Concise Timely Business Building Opportunities from Field of Industry

North Atlantic

MANSFIELD, CONN.—State of Connecticut, F. Salmon controller, state house, Hartford, plans the construction of a power house unit, etc., at Mansfield Training school.

NEW HAVEN, CONN.—United Illuminating Co., 84 Templye street, soon will award the contract for the construction of a 4-story power plant addition, 150 x 160 feet. Westcott & Mapes, 139 Orange street, are architects.

BALTIMORE—General contract for the construction of a boiler house and power plant, 1-story, for St. Mary's Seminary, has been awarded to H. T. Booth & Co., 821 Denrike building, Washington. (Noted Dec. 20.)

BOSTON—Quality Appliance Dealers Inc., 22 Garden street, incorporated recently, advises that it will manufacture incinerators and plans no plant construction at the present. (Noted Jan. 31.)

EAST SPRINGFIELD, MASS.—Storms Drop Forging Co. plans the construction of a plant addition, 30 x 40 feet, to be used as an inspection and shipping department. The company is about to install two new hammers.

IRVINGTON, N. J.—Freas-Thermo Electric Co., 1208 South Grove street, advises that it has awarded the general contract for the construction of a 1-story addition, 90 x 160 feet, to the Austin Co., New York.

BROOKLYN, N. Y.—Pioneer Instrument Co., 754 Lexington avenue, has awarded the general contract for the construction of two alterations and additions, 3 and 4-story, to R. J. Murphy, 1841 Broadway, New York.

THIELLS, N. Y.—Department of Mental Hygiene, Albany, N. Y., plans to build a power plant addition for Letchworth Village here. Bids are due Feb. 20.

BRISTOL, PA.—Superior Zinc Corp., Radcliffe, and Monroe streets, plans to rebuild a 2-story plant damaged in a recent fire.

EDDYSTONE, PA.—Contract for structural steel for a building for the American Steel Foundries, 410 North Michigan avenue, Chicago, has been awarded to American Bridge Co.

KANE, PA.—The plant of the American Boiler Works was damaged in a fire recently.

PAWTUCKET, R. I.—U. S. Finishing Co. plans to erect a reinforced concrete coal holder at its local plant and will purchase automatic coal handling equipment. Phillip Holton Jr., construction engineer of the company, is supervising construction.

Resale Equipment News

COAL land and equipment of the Consolidated Coke Co. will be sold at public auction Feb. 15 in the Fayette county courthouse, Uniontown, Pa. The sale will include all machinery, tipples, railroads, tracks and other property of the company. The Bank of Pittsburgh, N. A., is receiver for the Consolidated Coke Co.

* * *

Equipment of the plant of E. & J. Bass Inc., 618 Broadway, New York, was sold at auction Jan. 30. It was fitted for the production of metal novelties and silverware. Equipment included presses, slitters and knives, punches, spinning lathes, embossing rolls, squaring shears, drill presses, milling machines, and electrical equipment.

Sales Calendar

Feb. 15—Receiver's sale of coal land and equipment of Consolidated Coke Co., Uniontown, Pa.

Feb. 15—Receiver's sale of plant of McMyler-Interstate Co., Bedford, O.

Feb. 25—Bids opened on operating plants of Puget Sound Electric Co., Tacoma, Wash.

East Central

CARBONDALE, ILL.—City of Carbondale plans the construction of an electric light plant. C. Easterly is mayor.

CHICAGO—Peoples Iron & Metal Co., 5833 Loomis street, has started excavating for the construction of its plant addition 50 x 112 feet. The new structure is expected to be ready March 15. (Noted Jan. 10.)

CHICAGO—Athey Truss Wheel Co., 5631 West Sixty-fifth street, is building a plant addition which will contain 14,000 square feet. Foltz & Co. are architects and builders. (Noted Jan. 31.)

CHICAGO—Western Electric Co., Forty-eighth avenue and West Twenty-second street, has awarded the general contract for the extension and reconstruction of its cable plant at the Hawthorne works to Turner Construction Co. Construction will be started immediately and is expected to be completed in a year.

CICERO, ILL.—National Malleable & Steel Castings Co., 1400 South Fifty-second avenue, plans the construction of a 1-story plant, 80 x 101 feet.

JOLIET, ILL.—Joliet Steam Dial Co. has awarded the general contract for the construction of a 3-story plant to Kaiser-Ducett, Rialto building.

LEMONT, ILL.—Nicholls Tool Co., Stephens street, incorporated recently, advises that it is manufacturing a line of hammers and tools and that it has its plant and all of its equipment. (Noted Jan. 31.)

ROCKFORD, ILL.—Solem Machine Co., 158 Morgan street, P. A. Solem manager, plans the erection of a 1-story and basement plant.

SHELBYVILLE, ILL.—City of Shelbyville, Carl Morehead clerk, has awarded the general contract for the construction of an electric light plant to Fairbanks, Morse & Co., 217 South Eighth street, St. Louis.

SOUTH CHICAGO, ILL.—Wisconsin Steel Co., 606 South Michigan avenue, has awarded the structural steel contract for a blast furnace building to John Mohr & Sons.

SPRINGFIELD, ILL.—Monarch Tractor Mfg. Co., division of Allis-Chalmers Mfg. Co., Milwaukee, has awarded the general contract for the erection of two plant additions, 100 x 200

feet, and 80 x 250 feet, to Alzina Construction Co., Unity building. (Noted Jan. 17.)

EVANSVILLE, IND.—Evansville Malleable Castings Co., 2549 East Colm street, L. P. Edwards manager, plans the construction of a plant addition.

ANDERSON, IND.—Wright-Tuttle Aircraft Motors Co. is reconditioning the building of the International Rubber Co., Twenty-fourth and Walton streets, for the manufacture of Renard-Belgium motors.

PLYMOUTH, IND.—Plymouth Body Works, manufacturer of commercial bodies, contemplates the construction of a 1-story plant. Frank Cullison, 114 East LaPorte street, is president.

SOUTH BEND, IND.—South Bend Forge Co., Westmore street, has awarded the general contract to H. G. Christman, 306 South Notre Dame street, for the construction of a 1-story plant, 60 x 200 feet. (Noted Jan. 31.)

DETROIT—General contract for a 4-story substation for the Detroit Edison Co., 2000 Second street, has been awarded to A. A. Albrecht Co.

DETROIT—Cadillac Motor Car Co., 2860 Clark street, has awarded the general contract for the construction of a machine shop to A. A. Albrecht Co., 1117 Penobscot building.

DETROIT—Ex-Cell-O Tool & Mfg. Co., 1469 East Grand boulevard, has awarded the general contract for the construction of a machine shop addition to the Austin Co., General Motors building.

DETROIT—Helios Braketester Corp., 518 Transporter building, incorporated recently, advises that it plans to manufacture a brake tester for automobiles. It is undecided whether to build its own plant or to rent one suitable for its use. (Noted Jan. 31.)

JACKSON, MICH.—Contract for reinforcing steel for the construction of the heat treat plant of the American Gear Mfg. Co. has been awarded to Truscon Steel Co. (Noted Jan. 24.)

VASSAR, MICH.—Village of Vassar, R. L. Blackmoor clerk, plans the construction of a light plant and water pumping plant addition.

BARBERTON, O.—Ric-Wil Co., manufacturer of door hangers, has let the contract to Albert M. Higley Co., 2036 East Twenty-second street, Cleveland, for the construction of a 1-story plant, 80 x 83 feet. (Noted Jan. 31.)

CLEVELAND—Monarch Aluminum Ware Co., 4613 Payne avenue, will vacate and sell its plant and take possession of 100,000 square feet in the former Ohio Body plant at Detroit avenue and West Ninety-fourth street.

CLEVELAND—Concrete reinforcing bar contract for a plant addition for Lamson & Sessions Co., 1971 West Eighty-fifth street, has been awarded to Bourne-Fuller Co. (Noted Jan. 31.)

CLEVELAND—Northern Blower Co., West Sixty-fifth street and Barberton avenue, is extending its plant by the addition of manufacturing floor space, 75 x 125 feet. The building formerly occupying the space has been torn down.

MOUNDSVILLE, W. VA.—City of Moundsville plans the establishment of an airport, including hangars, etc.

GREEN BAY, WIS.—Ft. Howard Paper Co., South State street, has let the general contract for a new turbine room to W. L. Fergus & Co., 343 South Dearborn street, Chicago.

GREEN BAY, WIS.—Miller-Rasmussen Ice Co., North Broadway, which expects to start work about March 15 on an ice producer plant and shipping room, 100 x 120 feet, has placed the order for artificial ice machines, engines, etc., with the Vilter Mfg. Co., Milwaukee.

LACROSSE, WIS.—As part of an $8,000,000 improvement program for 1929 by the Northern States Power Co. in its public utility plants in Minnesota and northwestern Wisconsin, a garage and service building will be built in LaCrosse. John G. Felton is local manager.

MANITOWOC, WIS.—Emil C. Schroeder, 617 North Tenth street, consulting engineer, is preparing specifications for the city light and power plant improvement recently authorized by the common council. New boilers, turbines, etc., will be required for a 2 and 3-story power house addition. Plans will be ready for bidders about Feb. 10. A. H. Zander is city clerk. (Noted Nov. 29.)

MANITOWOC, WIS.—W. W. Oeflein Inc., 110 East Wisconsin avenue, Milwaukee, has been awarded the general contract to build a 7-story addition, 115 x 302 feet, to the main works of the Aluminum Goods Mfg. Co. here. The same interest also has plans by W. Fred Doelke Jr., consulting engineer, Chicago, for a 3-story plant addition at Manitowoc, 100 x 170 feet, and will let contracts about Feb. 10 or 15. H. L. Vits is superintendent of construction.

MILWAUKEE—Industrial Controller Co., 306 Hanover street, manufacturing electrical and mechanical controlling devices, is taking bids through Architect Fitzhugh Scott, 214 Mason street, for the erection of a 3-story plant addition, 50 x 140 feet. Equipment is being purchased. Frank W. Magin is general manager.

MILWAUKEE—Wisconsin Public Service Corp., 559 Marshall street, plans an extensive expansion program for 1929 including a new gas holder and producer enlargement at Sheboygan, Wis. At Green Bay new equipment will be purchased. Steam, hydroelectric generating plants, gas plants, etc., will be constructed at Oshkosh, Manitowoc, Sheboygan and Marinette, Wis.

PRAIRIE DU CHIEN, WIS.—Chas. A. Cahill & Sons, engineers, 214 Mason street, Milwaukee, are in charge of plans for a new power system, boiler house, etc., for the Prairie Du Chien Woolen Mill Co. No estimate of the cost is yet available. Frank H. Poehler is president.

STOUGHTON, WIS.—Common council has engaged E. E. Dillon and J. M. Murphy, consulting engineers, 7 South Pinckney street, Madison, Wis., to take charge of an improvement program in the municipal steam generating plant.

Southern States

BIRMINGHAM, ALA.—Birmingham Electric Co. plans to spend $1,500,000 on its expansion program this year.

PARKDALE, ARK.—Waterworks Improvement District 1 J. K. Barnes chairman, soon will award the general contract for improvements to the waterworks, distribution system, etc.

CENTRAL CITY, KY.—City officials are contemplating the advisability of the establishment of an airport, including hangars, shops, etc.

LOUISVILLE, KY.—Southern Signal Co. suffered damages to its plant at 2017 Portland avenue, in a recent fire.

MAYFIELD, KY.—The city of Mayfield plans to establish an airport, including hangar, shops, etc.

CHARLOTTE, N. C.—Charlotte Airport Corp. plans to build a new hangar, 80 x 100 feet. Until the large storage hangars are built at the airport, this hangar will serve as a machine shop and storage hangar. Later it is to be a machine shop only.

MARSHALL, N. C.—East Coast Utilities Inc., Chicago, has acquired a site on French Broad river where it will install a hydroelectric power plant to be operated by the Northwest Carolina Utilities Co. (subsidiary of the former company).

CHARLESTON, S. C.—South Carolina Power Co. plans in 1929 to rebuild and erect new substations in Olar, Blackville, Allendale, Brunson, St. George, etc. The company will modernize systems acquired in a recent merger.

CHATTANOOGA, TENN.—Samuel Stamping & Enameling Co., W. R. Samuel president, Manufacturers road, has increased its capital stock to provide for the carrying out of its extensive expansion program. (Noted Dec. 20.)

NASHVILLE, TENN.—Phillips & Buttorff Mfg. Co., manufacturer of stoves, ranges, etc., has awarded the general contract to Porcelain Enamel & Mfg. Co., Eastern avenue and Twenty-third street, Baltimore, for the construction of a stove enameling plant, including mills, dryer, spray booth, etc.

ALBANY, TEX.—City of Albany plans the establishment of an airport.

AMARILLO, TEX.—Contract for the construction of a machine shop and hangar, 20 x 40 feet, and 90 x 100 feet, for the city of Amarillo, has been awarded to George M. Ledford, 1710 Taylor street. (Noted Jan. 31.)

BRECKENRIDGE, TEX.—An airport, including hangar, shops, etc., is contemplated by the city of Breckenridge.

BROWNSVILLE, TEX.—City of Brownsville, A. B. Cole mayor, received bids Feb. 1 for the construction of a hangar, 100 x 120 feet, at the municipal airport.

CORSICANA, TEX.—J. E. Metcalf & Sons have been awarded the contract for the construction of a hangar, 60 x 80 feet, at the municipal airport. Work will start shortly.

HOUSTON, TEX.—Reed Roller Bit Co., W. L. Childs vice president and general manager, plans the construction of a machine shop, 74 x 226 feet, and a store room, 74 x 100 feet. It will move the machinery of the recently-acquired Barrett-Robishaw Co., Beaumont, Tex., here.

GOSHEN, VA.—Virginia Public Service Co., Charlottesville, plans the construction of a dam at north end of Goshen Pass, and will erect a power house with two 8000-horsepower turbines at Wilson Springs.

West Central

BURLINGTON, IOWA—Limestone Fertilizer Co., Whitaker building, Davenport, Iowa, plans the construction of a 2-story power house and machine shop.

CLARION, IOWA—Municipal Utilities Co., H. T. Cory general manager, plans to build a power and light plant.

ANTHONY, KANS.—City of Anthony soon will award the contract for waterworks improvements including wells, pump house, tank, etc. Black & Veach, 700 Mutual building, Kansas City, Mo., are engineers.

WICHITA, KANS.—Stearman Aircraft Corp., 343 South Chautauqua avenue, plans the construction of a 1-story hangar.

WICHITA, KANS.—Knoll Aircraft Corp., 471 West First street, T. M. Thomas president, has awarded the general contract for the construction of an airplane plant to George Siedhoff Construction Co., Broadview Hotel.

WAYZATA, MINN.—City of Wayzata, G. L. Mullane clerk, plans to vote for bonds for the construction of a complete waterworks system, including wells, pump house, etc.

KANSAS CITY, MO.—W. S. Humphrey Wire & Iron Works Co. has been incorporated with $30,000 capital by Walter S. Humphrey, 306 Gladstone street.

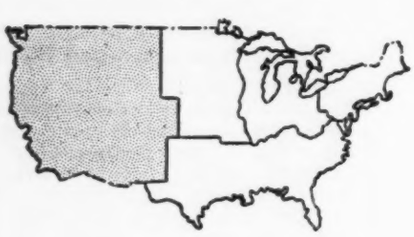
ST. LOUIS—Alco Valve Co., 5811 Manchester avenue, R. L. Sparks vice president and secretary, contemplates the construction of a 1-story plant.

ST. LOUIS—Laclede Power & Light Co., 1017 Olive street, is receiving bids for the construction of a 1-story substation, 29 x 52 feet. Management & Engineering Corp., 327 South LaSalle street, are engineers.

ST. LOUIS—Anheuser-Busch Inc., 721 Pestalozzi street, plans the construction of an addition to its power plant. The plant will have three 1100 horsepower boilers and eight turbo-generators. Adelbert von Gontard is chief engineer.

GRAND ISLAND, NEBR.—A. D. Baker, Clinic building, is architect for the construction of power plant planned by this city. (Noted Dec. 27.)

SIDNEY, NEBR.—This city plans the construction of a power plant. J. Ponquette, city hall, is clerk.



Western States

LOS ANGELES—Kittle Mfg. Co., 638 Santa Fe avenue, advises that it has awarded the general contract for the construction of a 1-story plant addition, 70 x 120 feet, to V. P. Gilbert, Citizens National Bank building. The Kittle company manufactures metal stampings, auto accessories, etc.

PALO ALTO, CALIF.—City of Palo Alto, J. F. Byxbee Jr. city engineer, plans waterworks improvements, including a pumping house.

SUISUN, CALIF.—City of Suisun, A. N. Trainor clerk, plans waterworks improvements including pumping house. W. Egbert, Postal Telegraph building, San Francisco, is engineer.

BAKER, OREG.—Expenditure of $150,000 this year for new construction and improvements is planned by Eastern Oregon Light & Power Co., to include a new automatic substation.

SEATTLE—Kenworth Motor Truck Co. has awarded the contract for structural steel for a plant to Wallace Bridge & Structural Steel Co.

WENATCHEE, WASH.—E. T. Pybus is doubling the floor space of his machine works here.

Canada

KITCHENER, ONT.—Waterworks commission plans extensive additions and improvements to waterworks plant here. The commission contemplates the purchase of a pumping unit of 2,000,000 gallons daily capacity, and is also considering the installation of a diesel engine. M. Pequegant is engineer.

NIAGARA FALLS, ONT.—Plans are being prepared for a new filtration plant and pumping station for the municipal water works. The project involves an expenditure of more than $450,000, taxpayers having approved a bond issue for this purpose.

TORONTO, ONT.—Rogers Batteryless Radio Co., 90 Chestnut street, will have plans for its proposed manufacturing plant on Fleet street revised on a smaller scale. New bids will be called in a couple of weeks. Architect, Norwood & White, 229 Yonge Street. (Noted Jan. 10.)

WINDSOR, ONT.—Bryant Pattern & Mfg. Works, 201 Glengarry avenue, has let contract to W. Pierce, Pelissier street, for the erection of a machine and pattern shop on Sheppard and Highland streets, to be 1-story, 90 x 96 feet. T. J. Eansor & Sons Ltd., 300 Pitt street east, have the steel contract.

MAISONNEUVRE, QUE.—James Shearer Co. Ltd., 225 St. Patrick street, Montreal, Que., has been awarded contract for the erection of an addition to the plant of the Canadian Vickers Ltd., Notre Dame and Ville Marie streets. A number of subtrades have also been let. Building to be 2-story, 75 x 175 feet.

ST. HYACINTH, QUE.—A hangar for four airplanes and to includes a repairshop is to be constructed at the airport here. A. E. Bourbeau is superintendent of works.

REGINA, SASK.—Hutton & Souter, 6 James street south, Hamilton, Ont., are preparing plans for the erection of an assembly plant here for the Chrysler Motor Co., Windsor, Ont. Building to be 1-story, steel and brick construction. Site not yet chosen.

Recent Incorporations

CHICAGO—H. A. Bernhardt & Co., 157 East Erie street, has been incorporated with 2000 shares no par value stock to manufacture and deal in metal products, lighting fixtures, etc., by C. O. Bedell.

NEWPORT, KY.—Queen City Semi-Steel Foundry Co. has been incorporated with $10,000 capital by J. Arthur Leary and Louis B. Arnold.

BOSTON—Motograph Corp., of New England has been incorporated with $10,000 capital to manufacture, assemble and deal in machinery and apparatus for advertising purposes by Herbert F. Hatch, 390 Waverly avenue, Newton, Mass.

BOSTON—Poole Rotary Valve Engine Co. has been incorporated with 500 shares preferred stock and 500 shares no par value stock to manufacture engines, motors, rotary valves, etc., by Alexander D. Poole, Watertown, Mass.

BOSTON—Steel Pump & Equipment Co. has been incorporated with 2500 shares no par value stock to manufacture pumps, tanks, automatic controllers, etc., by Gordon Steele, 6 Parkway road, Stoneham, Mass.

CAMBRIDGE, MASS.—Robbins & Burke Inc. has been incorporated with $10,000 capital to

manufacture automobile and auto truck bodies by John E. Burke, Woburn, Mass.

CAMBRIDGE, MASS.—Pruyn Bearings Corp. has been incorporated with $15,000 in preferred stock and $15,000 in common stock to manufacture all types of ball bearings, roller bearings, clutch facings, etc., by Murray A. Bram, 13 Hampshire court, Everett, Mass.

CONCORD, MASS.—Conant Machinery & Steel Co., 346 Main street, has been incorporated with $100,000 capital to manufacture and deal in steel and steel products by Wallace B. Conant, Concord.

LYNN, MASS.—Howard Development Co. has been incorporated with $10,000 capital to manufacture and deal in all kinds of machinery, by Merton W. Howard, 27 Gilbert street.

QUINCY, MASS.—Murray & Tregurtha Inc. has been incorporated with 10,000 shares no par value stock to manufacture boilers, engines, machinery, etc., by Frank W. Carpenter, 1 Hancock street, Quincy.

SPRINGFIELD, MASS—Universal Keyless Lock Co. has been incorporated with 1000 shares no par value to manufacture locks, etc., by Dario Roberti, 128 Newland street.

DETROIT—Commercial Machine Products Co., 3917 Bellevue avenue, has been incorporated with $10,000 capital to manufacture and deal in machine products by William H. Young.

DETROIT—Scott Valve Mfg. Co., 3963 McKinley avenue, has been incorporated with $200,000 capital to manufacture and deal in brass, iron and other metal valves.

DETROIT—Cogsdill Mfg. Co., 6511 Epworth boulevard, has been incorporated with $150,000 capital to manufacture and deal in metal cutting and machine tools.

YPSILANTI, MICH.—Crosby-Ross Window Equipment Corp., 603 West Michigan avenue, has been incorporated with $100,000 capital and 20,000 shares no par value stock to manufacture and deal in window screens, screen doors, etc., by J. S. Crosby.

BELLEVILLE, N. J.—Silver Lake Iron Works Co. Inc. has been incorporated with $100,000 capital by Joseph A. Delissio, Newark, attorney.

BOONTON, N. J.—Hercules-Campbell Body Co. Inc. has been incorporated with $100,000 in preferred stock and 10,000 shares no par value stock to manufacture automobile bodies by Corporation Trust Co., Jersey City, N. J.

New Incorporations In Separate Listing

AS NEWS of the incorporation of a concern in the metal-working field is a direct lead to a prospective buyer of various lines of products included in the field of IRON TRADE REVIEW, *notice of such incorporations, as received from various secretaries of state, are being segregated from other news in the Construction and Enterprise department. This makes reference easier for those who regard these leads as more important than others. The arrangement is alphabetical by states.*

JERSEY CITY, N. J.—Automatic Damper Co. has been incorporated with $100,000 capital to manufacture automatic dampers, etc., by the Automatic Damper Co.

NEWARK, N. J.—Bryan Boilers Inc. has been incorporated with $100,000 capital by McKirgan & Gilson, Summit, attorneys.

UNION CITY, N. J.—Mills Sheet Metal Works of Union City has been incorporated with $100,000 capital by A. Michael Lepore, Union City, attorney.

NEW YORK—Valenti Metal Corp. has been incorporated with $50,000 capital by A. M. Ferri, Long Island City, N. Y.

NEW YORK—West Side Roofing & Sheet Metal Works has been incorporated with $20,000 capital by C. A. Cohen, 261 Broadway, attorney.

NEW YORK—Woodhave Metal Stamping Co. has been incorporated with 200 shares no par value stock by Renander & Miller, Jamaica, N. Y., attorneys.

NEW YORK—Repeating Stamp & Duplicator Corp. has been incorporated with $50,000 in preferred stock and 3000 shares no par value stock by S. V. Ryan, Albany, attorney.

UTICA, N. Y.—Rice Tool & Die Corp. has been incorporated with $15,000 capital by Miller & Hubbell, Utica, attorneys.

WHITE PLAINS, N. Y.—White Plains Sheet Metal Works has been incorporated with $10,000 capital by Warren & Scott, White Plains, attorneys.

CHARLESTON, W. VA.—Electric Power Factory Control Inc. has been incorporated with $100,000 capital to manufacture and deal in electrical devices by A. M. McCormick.

TORONTO, ONT.—Gale Anti-Glare Devices Ltd. has been incorporated to manufacture and deal in machinery, tools, implements and appliances, by Joseph P. Walsh, Thomas M. Mungovan and Charles A. Thompson, all of Toronto.

TORONTO, ONT.—W. Bohne & Co. Ltd. has been incorporated to manufacture and deal in piano hammers and strings by George Wilkie, Thomas D. Delamere, George E. Hill and John F. Woods, all of Toronto.

TORONTO, ONT.—Transcanada Communications Ltd. has been incorporated to manufacture and deal in electric automotive, wireless, radio and magnetic articles, machinery and equipment with $1,000,000 capital by Arthur W. Holmestead, Leonard V. Sutton and Helen G. Sinclair, all of Toronto.

WELLAND, ONT.—Standard Steel Construction Co. Ltd. has been incorporated to manufacture and deal in iron, steel and other metals, with 25,000 shares of no par value stock by James S. Beattie, John R. Rumball and Wilfred M. Gordon, all of Toronto.

MONTREAL, QUE.—Thermofrost Co. Ltd. has been incorporated to manufacture and deal in refrigerating apparatus and equipment with 1000 shares no par value stock by Cecil C. Davies, Harvey A. Cotnan, Clarence L. Booth, and others, all of Montreal.

New Trade Publications

WELDED VESSELS—A. O. Smith Corp., Milwaukee, has issued a bulletin on its welded jacketed vessels for high pressures and similar service. Methods of fabricating and testing are covered in text and illustration.

PRODUCTION MACHINERY—The Bullard Co., Bridgeport, Conn., has issued a catalog on its production machinery and the method of its use, with stress on the latter as a manufacturing method. It is thoroughly illustrated to show operation and results.

SCREWS—A history of the origin and development of the screw from its inception to the present is the subject matter of a booklet being distributed by the Parker-Kalon Corp., 200 Varick street, New York. The historical research is interesting and leads up to the modern types of screws manufactured by the Parker-Kalon Corp.

WELDING—The subcommittee on pipe joints of the American Gas Association Inc., 420 Lexington avenue, New York, has published a 72-page booklet entitled "Oxy-Acetylene Welding of Steel Pipe." The book sets forth details of technique in oxy-acetylene welding of steel pipe. It contains the results of strength tests of steel pipe, both plain and welded, cost data, information about welding rod, procedure controls and the use of templets in the layout of welding pipe fittings.

INDUSTRIAL BUILDING—A. A. Wickland & Co. Inc., Chicago, engineer, has issued a loose-leaf bulletin to convey the message of its method of planning industrial plants by analysis of requirements and application of engineering ideas to obtain the best results from the money expended. Illustrations include views of plants and interiors and diagrams of plant layouts.

STRUCTURAL STEEL—Carnegie Steel Co., Pittsburgh, has issued a catalog of its rolled steel plates for column bases, bearing plates, bridge shoes, machinery bases and similar products. It contains tables of recommended sizes, rolling and cutting tolerances, extras for cutting to length, tables of weights per linear foot and sizes required for various sizes and weights of beam sections.

ROPE CONVEYORS—British Ropeway Engineering Co. Ltd., London, Eng., in a well-illustrated catalog describes installations of overhead cable conveyors for handling bulk materials over long distances. Accessories are shown. Methods of erection and maintenance are described. Application to special requirements are suggested and safety measures described.

STEEL CASTINGS—The current issue of *Research Group News*, the publication of the Electric Steel Founders' Research group, contains some unusually interesting matter on the fatigue of metals. This subject is discussed thoroughly in relation to the strength and toughness of ferrous metals, with description of various methods of testing properties of the metals. Illustrations cover the various machines used in the tests.

STEAM BOILERS—Combustion Engineering Corp., New York, has issued a reprint of a paper by Walter Siegerist, of its staff, on the boiler house in the oil refinery. The subject matter is of interest and value to steam plant operators in all fields of industry. It treats the tendency toward high boiler pressures, modern fuel-burning methods, water-cooled furnaces, pulverized coal and pulverized petroleum coke, air preheaters, waste heat boilers and steam plant auxiliaries.

Discounts and Extras

Steel Pipe

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis.

Butt Weld

	Black	Galvanized
¼-inch	45	19½
⅜ and ⅜-inch	51	25½
½-inch	56	42½
¾-inch	60	48½
1 to 3-inch	62	50½
Lap Weld		
2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½

REAMED AND DRIFTED

Butt Weld		
1 to 3-inch	60	48½
Lap Weld		
2-inch	53	41½
2½ to 6-inch	57	45½

EXTRA STRONG—PLAIN ENDS

Butt Weld		
⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½
Lap Weld		
2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½

DOUBLE EXTRA STRONG

Butt Weld		
½-inch	42	32½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½
Lap Weld		
2-inch	41	32½
2½ to 4-inch	43	34½
4½ to 6-inch	42	33½
7 to 8-inch	38	25½

(Note—Large jobbers obtain additional preferential discounts of 1 and 5 on black and 1½ and 5 on galvanized. Extra 5 per cent granted in the 4th quarter 1927 and 1st quarter 1928 discontinued April 2, 1928.)

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis.

THREADS AND COUPLING

	Black	Galv.
Butt Weld		
¼ and ⅜-inch	+11	+36
½-inch	23	5
¾-inch	28	11
1 and 1¼-inch	31	15
½ and 2-inch	35	18
Lap Weld		
1¼ and 1½-inch	Upon application	
2-inch	23	9
2½ to 3½-inch	28	12
4 to 6-inch	30	17
7 and 8-inch	29	16
9 to 12-inch	26	11

REAMED AND DRIFTED

2-inch to 6-inch—Two points less than above

EXTRA STRONG, PLAIN ENDS

¼ and ⅜-inch	+13	+48
½-inch	23	7
¾-inch	28	12
1 to 2-inch	34	18
Lap Weld		
2-inch	29	13
2½ to 4-inch	34	20
4½ to 6-inch	33	19
7 and 8-inch	31	17
9 to 12-inch	21	8

DOUBLE EXTRA STRONG

Butt Weld		
½-inch	+47½	+59½
¾-inch	+28	+40
1-inch	+34	+46
1¼-inch	+28	+40
1½-inch	+27	+39
Lap Weld		
2 and 2½-inch	+13	+25
3 and 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	.....

(Note—Large jobbers obtain additional preferential discounts of 1, 5 and 2½ on black and galvanized.)

Boiler Tubes

Pittsburgh carload discounts

STEEL (Lap Weld)

2 and 2¼-inch	40 off
2½ and 2¾-inch	48 off
3-inch	54 off
3¼ to 3¾-inch	56 off
4-inch	59 off
4½ to 6-inch	48 off

Subject to two 5 per cent discounts on full carload shipments. On less than 10,000 pounds, base discount reduced 6 points and one 5 per cent allowed. On 10,000 pounds to carload, base discount reduced 4 points and two 5 per cents allowed.

CHARCOAL IRON

1½-inch	1 off
1¾-inch	8 off
2 and 2¼-inch	13 off
2½ and 2¾-inch	16 off
3-inch	17 off
3¼ to 3½-inch	18 off
4-inch	20 off
4½-inch	21 off

Subject to 10 per cent discount on full carload lots. On less than 10,000 pounds, base discount reduced 2 points and no preferential allowed. On 10,000 pounds to carload, 5 per cent preferential allowed.

SEAMLESS COLD DRAWN

1-inch	63 off
1¼ and 1½-inch	55 off
1¾-inch	39 off
2 and 2¼-inch	34 off
2½ and 2¾-inch	42 off
3-inch	48 off
3¼ and 3½-inch	50 off
4-inch	53 off
4½, 5 and 6-inch	42 off

SEAMLESS HOT ROLLED

1¾-inch	39 off
2 and 2½-inch	40 off
2½ and 2¾-inch	48 off
3-inch	54 off
3¼ and 3½-inch	56 off
4-inch	59 off
4½, 5 and 6-inch	48 off

Subject to 5 per cent supplementary discount for carload lots. On less than 10,000 pounds, base discount reduced 6 points. On 10,000 pounds to carload, base discount reduced 4 points and one 5 per cent allowed.

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts on New List July 1, 1925

Carbon 0.10 to 0.30 per cent.....50 to 55 off
Carbon 0.30 to 0.40 per cent.....45 to 50 off

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES

Outside diameter	Gage	Net prices per foot f.o.b. Pittsburgh Price
21-inch	12-gage	14¼c
2-inch	11-gage	15c
2-inch	10-gage	16c
2¼-inch	12-gage	16c
2¼-inch	11-gage	17c
2¼-inch	10-gage	18c
3-inch	7-gage	33c
5⅜-inch	9-gage	50c
5½-inch	9-gage	52c

Plus usual extras for forming and for long lengths over 18 feet and for commercially exact lengths.

Plate Extras

BASE

Rectangular plates, tank steel or conforming to manufacturers' Standard Specifications for structural steel, date Nov. 24, 1922, or equivalent, ¼-inch thick and over on thinnest edge (except for ¼-inch or 72 inches wide when ordered to weight in pounds per square foot—see width and gage extras), 100 inches wide and under, down to but not including 6 inches wide, 5 feet 0 inches long up to published limit in length but not over 80 feet 0 inch, are base. Extras per pound for width or diameter.

All Plates Rectangular or Otherwise

¼-inch thick and heavier, but not less than 11 pounds per square foot, if ordered to weight.

Over 100 to and including 110 inches	.05c
Over 110 to and including 115 inches	.10c
Over 115 to and including 120 inches	.15c
Over 120 to and including 125 inches	.25c
Over 125 to and including 128 inches	.50c

Plates less than ¼-inch or lighter than 11 pounds per square foot.

Over 72 to and including 84 inches	.10c
Over 84 to and including 96 inches	.20c
Over 96 to and including 100 inches	.30c

Over 100 inches add .35c to width extras for plates ¼-inch thick and heavier.

GAGE

Plates Not Exceeding 72 Inches Wide

Plates less than ¼-inch gage, to and including ⅜-inch; or lighter than 10.2 pounds per square foot, to and including 7.65 pounds square foot..... .20c

Plates Over 72 Inches Wide

Plates less than ¼-inch gage, to and including ⅜-inch; or lighter than 11 pounds per square foot, to but not including 7.65 pounds square foot.... .20c
Plates ordered 7.65 pounds square foot .30c

QUALITIES

Pressing steel	.10c
Flange steel (boiler grade)	.15c
Ordinary firebox steel	.20c
Stillbottom steel	.30c
Locomotive firebox steel	.50c
Marine steel	1.50c

Hull materials subject to U. S. Navy Dept. specifications for medium or soft steel .10c

High tensile hull steel subject to U. S. navy department or equivalent specifications 1.00c

Boiler steel subject to U. S. navy department specifications, classes A-B 1.50c

Hull plates to hull specifications, required to stand cold flanging, take extra for flange steel.

Floor Plates

Checkered plates 1.75c

Checkered plates are not furnished to sketch and are rolled from "Stock Steel" only. No physical tests will be made on checkered plates.

INSPECTION

Mill inspection .....No extra

Charges for other inspection, such as Lloyd's or American bureau of shipping, will be made by inspection bureau direct to buyer.

CUTTING

LENGTH OR DIAMETER

All Plates, Rectangular or Otherwise

Five feet and over up to published limit of length, but not over 80 feet.....No extra
Under 5 feet to 3 feet inclusive..... .10c
Under 3 feet to 2 feet inclusive ..... .25c
Under 2 feet to 1 foot inclusive ..... .50c
Under 1 foot 1.55c
Over 80 feet to 100 feet inclusive ..... .10c

Over 100 feet add .25c plus .05c for every additional 2 feet or fraction thereof.

Regular Sketches

With not more than four straight cuts. (Including straight taper plates)
Additional extra ..... .10c

Irregular Sketches

With not more than four straight cuts. (Sketches cannot be sheared with reentrant angles)
Additional extra ..... .20c

Model 24-P ejection type press, having box 100" long, 20" wide, 42" deep. Finished bales measure 20" x 14" x 14" minimum. Can be equipped with power operated loading hopper.

LOGEMANN SCRAP METAL PRESSES

Hydraulically compressed scrap commands at all times the *best price,* and can be conveniently stored and held for favorable markets; it is easily handled; it practically eliminates corrosion; it saves much time in remelting; cars can be easily loaded to capacity.

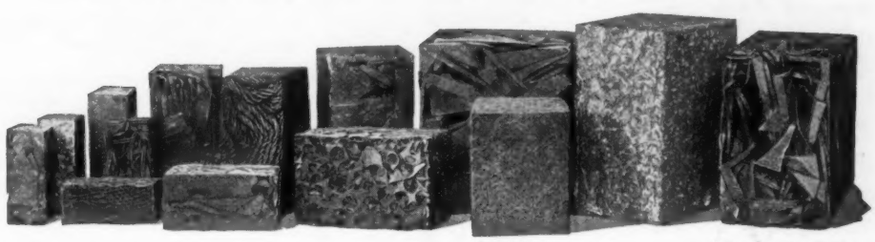
***LOGEMANN Presses* are built in several types and sizes to suit all requirements.**

You cannot go wrong on a LOGEMANN—it's a money maker from the day it is set in operation.

PIONEERS!

LOGEMANN Scrap Metal Presses, pioneers in this industry, enjoy an enviable reputation for long life and economical operation. They are in daily use in practically every large sheet mill, stamping plant, scrap yard, and in metal-working establishments of all kinds.

Our many years of accumulated experience, and services of our Engineering Department are at the disposal of all plants accumulating metal scrap of any kind.



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